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# Vol. I

## TRANSCRIPT OF RECORD

## Supreme Court of the United States

OCTOBER TERM, 1930

## No. 51

SARANAC AUTOMATIC MACHINE CORPORATION, PETITIONER,

*vs.*

WIREBOUNDS PATENTS COMPANY ET AL.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT

PETITION FOR CERTIORARI FILED FEBRUARY 20, 1930

CERTIORARI GRANTED APRIL 21, 1930

(34,806)

# (34,806)

# SUPREME COURT OF THE UNITED STATES

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*vs.*

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## VOL. I

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| Clerk's certificate.....(omitted in printing).. | 1964 | |
| Order allowing certiorari | 1965 | 1809 |

[fols. a & 1] [Caption omitted].

[fol. 2]

## IN UNITED STATES DISTRICT COURT, WESTERN DISTRICT OF MICHIGAN

BILL OF COMPLAINT—Filed March 16, 1925.

To the Honorable the Judges of the District Court of the United States for the Western District of Michigan, Southern Division:

The plaintiffs, Wirebounds Patents Company and 4-One Box Machine Makers, bring this, their bill of complaint against the Saranac Automatic Machine Company.

And plaintiffs aver:

### I

Plaintiff, Wirebounds Patents Company, is a corporation of the State of Maine, having an office at Kittery, Maine, and is a citizen and inhabitant of said state.

Plaintiff, 4-One Box Machine Makers, formerly named "Wirebounds Corporation," is a corporation of the State of Maine, having an office at Portland, Maine, and a place of business at Rockaway, New Jersey, and is a citizen and inhabitant of said State of Maine.

Defendant, Saranac Automatic Machine Company, is a corporation and inhabitant of the State of Delaware, and has a regular and established place of business at Benton Harbor, Michigan, in said Western District of Michigan, Southern Division, wherein said defendant has committed acts of infringement and/or contributory infringement hereinafter complained of.

### II

This action is brought for infringement of certain letters patent of the United States. Jurisdiction of this court is based upon the patent laws of the United States, and upon the right to injunctive relief thereunder.

## III

On and prior to October 14, 1904, Richard G. Inwood and Perry C. Lavenberg, citizens of the United States, then residing at South Bend, Indiana, were the original, first and joint inventors of new and useful improvements in Combined Carriage and Former for Wire Bound Box Machines, not known or used by others in this country before their invention or discovery thereof and not patented nor described in any printed publication in this or any foreign country prior to their invention or discovery thereof or [fol. 3] more than two years prior to their application for United States patent next hereinafter mentioned, and not in public use nor on sale in the United States for more than two years before their said application, and not abandoned by them prior to their said application, and not first patented or caused to be patented by them, their legal representatives or assigns, in any foreign country upon an application filed more than twelve months prior to the filing of their said application in the United States. So being the original, first and joint inventors, as aforesaid, said Richard G. Inwood and Perry C. Lavenberg, on October 14, 1904, made application to the Commissioner of Patents of the United States for a patent for their said invention, in accordance with the then existing laws of the United States, and complied in all respects with the conditions and requirements of said laws.

## IV

Upon said application of said inventors, and pursuant to the assignments hereinafter referred to, due proceedings were had, in accordance with all requirements of law, such that on February 9, 1915, letters patent of the United States No. 1,128,144, signed and sealed and executed in due form of law, were issued for said invention in Combined Carriage and Former for Wire Bound Box Machines to the plaintiff, Wirebounds Patents Company. And plaintiffs bring here into court a duly authenticated copy of said patent and pray that the same may be taken as a part of this complaint.

## V

On and prior to October 27, 1904, said Richard G. Inwood and Perry C. Lavenberg, citizens of the United States, then residing at South Bend, Indiana, were the original, first and joint inventors of new and useful improvements in Means for Making Box Blanks not known or used by others in this country before their invention or discovery thereof and not patented nor described in any printed publication in this or any foreign country prior to their invention or discovery thereof or more than two years prior to their application for United States patent next hereinafter mentioned, and not in public use nor on sale in the United States for more than two years before their said application, and not abandoned by them prior to their said application, and not first patented or caused to be patented by them, their legal representatives or assigns, in any foreign country upon an application filed more than twelve months [fol. 4] prior to the filing of their said application in the United States. So being the original, first and joint inventors, as aforesaid, said Richard G. Inwood and Perry C. Lavenberg, on October 27, 1904, made application to the Commissioner of Patents of the United States for a patent for their said invention, in accordance with the then existing laws of the United States, and complied in all respects with the conditions and requirements of said laws.

## VI

Upon said last mentioned application of said inventors, and pursuant to the assignments hereinafter referred to, due proceedings were had, in accordance with all requirements of law, such that on February 9, 1915, letters patent of the United States No. 1,128,145, signed and sealed and executed in due form of law, were issued, for said invention of Means for Making Box Blanks, to the plaintiff, Wirebounds Patents Company. And plaintiffs bring here into court a duly authenticated copy of said patent and pray that the same may be taken as a part of this complaint.

## VII

On and prior to October 14, 1904, said Richard G. Inwood and Perry C. Lavenberg, citizens of the United States, then

residing at South Bend, Indiana, were the original, first and joint inventors of certain new and useful improvements in Methods of Making Boxes not known nor used by others in this country before their invention or discovery thereof and not patented nor described in any printed publication in this or any foreign country prior to their invention or discovery thereof or more than two years prior to their application for United States patent next hereinafter mentioned, and not in public use nor on sale in the United States for more than two years before their said application, and not abandoned by them prior to their said application, and not first patented or caused to be patented by them, their legal representatives or assigns, in any foreign country upon an application filed more than twelve months prior to the filing of their said application in the United States. So, being the original, first and joint inventors, as aforesaid, said Richard G. Inwood and Perry C. Lavenberg, on October 14, 1904, made application, Serial No. 228,443, to the Commissioner of Patents of the United States for a patent for their said invention, inter alia, in [fol. 5] accordance with the then existing laws of the United States, and complied in all respects with the conditions and requirements of said laws, and thereafter, on April 21, 1914, while their said application was pending in the Patent Office, the said inventors divided their said application, which contained subject-matter other and separate and distinct from the invention or improvements in methods of making boxes, as aforesaid, and filed, as a division of their said application of October 14, 1904, a further application to said Commissioner for a patent for their said invention or improvements in Methods of Making Boxes, in accordance with the then existing laws of the United States, and complied in all respects with the conditions and requirements of said laws.

## VIII

Upon said Inwood and Lavenberg's said application of October 14, 1904, and their said divisional application of April 21, 1914, and pursuant to the assignments hereinafter referred to, due proceedings were had, in accordance with all requirements of law, such that on February 9, 1915, letters patent of the United States No. 1,128,252, signed

and sealed and executed in due form of law, were issued to the plaintiff, Wirebounds Patents Company, for said invention of improvements in Methods of Making Boxes, upon said Inwood and Lavenberg's said application of April 21, 1914, as a division of their said application of October 14, 1904. And plaintiffs bring here into court a duly authenticated copy of said patent and pray that the same may be taken as a part of this complaint.

IX

Before the grant of said patents Nos. 1,128,144, 1,128,145 and 1,128,252, the said inventors, Richard G. Inwood and Perry C. Lavenberg, for good and valuable consideration, by an instrument or instruments in writing, duly executed and recorded while the applications for said patents were pending, assigned the respective inventions of said applications and all rights thereto and thereunder to one National Wire Bound Box Company, a then existing corporation of the State of Indiana, and authorized the Commissioner of Patents to issue the said patents for said inventions, to said assignee, as by reference to said instrument or instruments, or duly authenticated copies thereof here in court to be produced, will more fully appear.

[fol. 6] Said assignment or assignments of said patents was made prior to April 11, 1911, and before any of the other assignments and license agreements hereinafter referred to.

X

Thus, by virtue of the premises, said National Wire Bound Box Company became and was, prior to the 11th day of April, 1911, the assignee of the inventions of said patents Nos. 1,128,144, 1,128,145 and 1,128,252 and the holder of the legal title thereto. Thereupon, in a suit by one William P. Healy, then a resident of the City of Chicago, Illinois, and a citizen of the State of Illinois, against said National Wire Bound Box Company and others, in the Circuit Court of the United States for the District of Indiana, in equity, and pursuant to a mandate of the United States Circuit Court of Appeals for the Seventh Circuit, a final decree was entered upon the 11th day of April, 1911, by which it was ordered, adjudged and decreed that said Na-

tional Wire Bound Box Company, by virtue of the aforementioned assignments made to it by said Inwood and Lavenberg jointly of said inventions of said patents Nos. 1,128,144, 1,128,145 and 1,128,252, was and at all times since said assignments had been the trustee of the said William P. Healy, and that as said trustee said National Wire Bound Box Company then, at the times of said assignments, held and at all times since said assignments had held, the inventions, applications and patents aforesaid for the sole use and benefit of the said William P. Healy, his heirs and assigns. Said decree further ordered, adjudged and decreed that said National Wire Bound Box Company execute and deliver to the said William P. Healy, his heirs and assigns, an assignment in writing of said inventions of said patents Nos. 1,128,144, 1,128,145 and 1,128,252. Pursuant to said decree said National Wire Bound Box Company, on or about the 21st day of April, 1911, by an instrument in writing duly executed and recorded, sold, assigned and transferred to the said William P. Healy the entire right, title and interest in, to and under said inventions of said patents Nos. 1,128,144, 1,128,145 and 1,128,252. Said assignment was executed pursuant to the decree aforesaid, as of the dates of the patents and applications for patents to which the assignment pertained, and, as to every such patent or application for patent, took effect as of said date nunc pro tunc. All as by reference to said assignment or a [fol. 7] duly authenticated copy thereof here in court ready to be produced will more fully appear.

## XI

For good and valuable consideration, by an instrument in writing of even date with the aforesaid decree, to wit, on April 11, 1911, said William P. Healy gave to the plaintiff, "One Box Machine Makers, then named "Wirebounds Corporation," an exclusive license to manufacture and sell, and to license others to manufacture and sell, embodiments of the inventions of said application for patents Nos. 1,128,144, 1,128,145, and 1,128,252, which license also included numerous other patents and applications relating to wire bound box machinery then owned by said William P. Healy.

Said exclusive license was suspended to take effect upon the termination of a certain prior license under said pat-

ents and applications which said William P. Healy gave on February 15, 1911, to one Healy Box Company, a then existing corporation of New Jersey. All rights granted by said prior license were conditioned upon the performance of certain acts by said Healy Box Company, and the right was reserved to said William P. Healy to terminate said license and all rights thereunder upon the failure of said Healy Box Company to perform said acts. After the granting of the aforesaid licenses, said Healy Box Company failed to perform certain acts upon the performance of which its license was conditioned, and thereupon said William P. Healy duly cancelled the same on or about October 4, 1913; and immediately upon said cancellation, to-wit, on October 4, 1913, the aforesaid suspended license to the then named "Wirebounds Corporation" (being the plaintiff, 4 One Box Machine Makers) became in full force and effect, and continued in full force and effect until the grant of the amended license hereinafter referred to in paragraph XIII hereof.

## XII

On or about March 2, 1914, the said William P. Healy transferred by mesne assignments to the plaintiff, Wirebounds Patents Company, the entire right, title and interest in and to the patents, inventions and applications hereinbefore referred to, including the inventions of said patents Nos. 1,128,144, 1,128,145 and 1,128,252, and in and to all rights of action and recovery for past infringement of said patents, and also the entire right, title and interest of said William P. Healy as licensor of Wirebounds Corpo-
[fol. 8] ration, in, to and under the license agreement dated April 11, 1911, aforesaid, between said William P. Healy and Wirebounds Corporation.

And Wirebounds Corporation (the plaintiff now named 4 One Box Machine Makers) assented to and ratified the assignment by William P. Healy to Wirebounds Patents Company of the said patents, inventions and applications and of the entire right, title and interest of said William P. Healy, as licensor, aforesaid, in, to and under said license agreement.

Said assignment or assignments and ratification were respectively made for good and valuable consideration, by instruments in writing duly executed and delivered, and

said assignments were recorded, which instruments, or duly authenticated copies thereof, are here in court ready to be produced.

## XIII

Said license agreement of April 11, 1911, between William P. Healy and Wirebounds Corporation was amended on or about May 16, 1916, and a new license agreement, dated May 16, 1916, was given by the plaintiff, Wirebounds Patents Company, for good and valuable consideration, to the Wirebounds Corporation (now the plaintiff 4-One Box Machine Makers), whereby plaintiff, 4-One Box Machine Makers, acquired or obtained a further confirmation of the exclusive right to operate under the patents which are here charged to be infringed by this defendant.

## XIV

By reason of the premises, and prior to the filing of this bill of complaint, and prior to the acts of infringement hereinafter complained of, the plaintiff, Wirebounds Patents Company, became, and has ever since continued to be, the sole owner of the legal title of said patents Nos. 1,128,144, 1,128,145 and 1,128,252, and of the other patents formerly owned by said William P. Healy, as hereinbefore stated; and the plaintiff, 4-One Box Machine Makers (formerly named "Wirebounds Corporation") became and has ever since continued to be, the exclusive licensee under all said patents, including said patents Nos. 1,128,144, 1,128,145 and 1,128,252.

[fol. 9]

## XV

The inventions of said patents Nos. 1,128,144, 1,128,145 and 1,128,252, and each of them have long been and are now generally recognized as of great utility and value. Said inventions of said patents have been extensively applied to use and have afforded a foundation of a new and extremely successful industry in the manufacture of wirebound boxes, and have provided the basis of new and highly successful means and methods of expeditiously and economically producing such boxes. The licensees of the plaintiffs and their predecessors have made, and are now

making, many millions of said boxes, and have used, and are using, hundreds of machines embodying the inventions of said patents Nos. 1,128,144 and 1,128,145, and have practiced and are practicing, the method of said patent No. 1,128,252, in the industry of producing said wirebound boxes, which industry is widespread over the United States and is an important branch of industry in many states and cities of the United States.

XVI

The respective inventions of said patents Nos. 1,128,144, and 1,128,145 are susceptible of conjoint embodiment and use in a single mechanical organization, and each is and both are susceptible of conjoint practice and use with the invention of said patent No. 1,128,252. Defendant has embodied, practiced and used said inventions, in said Western District of Michigan, each conjointly with each and or both the others. Defendant has embodied and used each and both the inventions of said patents Nos. 1,128,144 and 1,128,145 in machines susceptible of being used and intended by defendant to be used in the practice and use of the invention of said patent No. 1,128,252, and defendant has made and or sold and or leased and or licensed and or delivered said machines for use by others with the knowledge and intent on the part of defendant, and with the effect, that said machines be and they have been and are being used by others to practice and use the invention of said patent No. 1,128,252. And defendant has induced, enabled, aided, abetted and converted with others to practice and use the invention of said patent No. 1,128,252.

[fol. 10] XVII

Plaintiffs have complied with the provisions of the statutes with respect to notice by marking with the word "PATENTED," together with the dates of issue of the patents, the machines, or devises, embodying and practicing the inventions of said patents Nos. 1,128,144, 1,128,145 and 1,128,252, and licensed by said plaintiff, 4 One Box Machine Makers, to others.

## XVIII

Since the respective dates of issuance of said patents Nos. 1,128,144, 1,128,145 and 1,128,252 and since plaintiffs acquired their respective title to and exclusive rights under said patents as hereinbefore recited, and prior to and within six years next preceding the filing of this bill of complaint, and without leave or license by plaintiffs or either of them, and in defiance of said patents and the plaintiffs' rights thereunder, and after well knowing plaintiffs' rights in the premises, the herein named defendant, Saranac Automatic Machine Company, has committed the acts complained of in the foregoing Section XVI of this bill, and has made or caused to be made, and has used, and or sold, and or leased, and or licensed, and or delivered for use by others, and is still making, using and or selling, and or leasing, and or licensing, and or delivering for use by others within said Western District of Michigan, Southern Division, and elsewhere within the United States, numerous machines and devices embodying the inventions described and claimed in and patented by said patents Nos. 1,128,144 and 1,128,145; and, in furtherance of said infringement of said patents Nos. 1,128,144 and 1,128,145, has licensed, instigated, induced, enabled, aided, abetted, and concerted with others, and is continuing to license, instigate, induce, enable, aid, abet and concert with others to use machines and devices embodying the inventions described and claimed in and patented by said patents Nos. 1,128,144 and 1,128,145; and said defendant has used, and is still using, the method invention of said patent No. 1,128,252; all within said District and elsewhere in the United States, and in infringement of said patents and each of them.

And well knowing that the machines or devices vended, leased or licensed to others to be used in infringement of the inventions of said patents Nos. 1,128,144 and 1,128,145, and or other machines or devices, would be and are used by defendant's vendees, lessees or licensees for us-

[fol. 11] ing the method invention described and claimed in and patented by said patent No. 1,128,252, the hereinnamed defendant, Saranac Automatic Machine Company, has vended, and or leased, and or licensed, and or delivered to others to use, machines or devices, with the knowl-

edge and intent that such machines or devices be used by said others to practice the method invention of said patent No. 1,128,252, and has instigated, induced, enabled, aided, abetted, and concerted with, and is instigating, inducing, enabling aiding, abetting and concerting with, said others to use the method invention of said patent No. 1,128,252, all within said District and elsewhere in the United States and in infringement of said patent.

Defendant has derived and continues to derive, unlawful gains and profits from said infringement of said patents Nos. 1,128,144, 1,128,145 and 1,128,252, and each of them, and plaintiffs have suffered and are further threatened with irreparable damage by reason of said infringement. Defendant threatens to continue all said acts above complained of.

## XIX

Plaintiffs are informed and believe, and therefore aver, that said patents Nos. 1,128,144, 1,128,145 and 1,128,252, and each of them are valid and effectual at law and in equity to secure to the plaintiffs the exclusive rights and privileges thereby granted. The plaintiffs have invested and expended large sums of money and have been put to great trouble and expense in and about the inventions of said patents, for the purpose of introducing the same into use and making the same profitable to the plaintiffs and to the public; and the public has generally acquiesced in the rights of the plaintiffs under said patents, and each of them; and fifty-eight licensees in the United States operating a still greater number of plants, have taken licenses under said patents to use the machines and method embodying the respective inventions in said patents, and have agreed to pay, and have paid, to the plaintiffs, established uniform license fees.

## XX

By reason of the inequitable and unlawful acts of the defendant hereinbefore complained of in Sections XVI and XVIII of this bill, plaintiffs charge infringement by said defendant more particularly of claims 6, 11, 13, 14, 26, 34, 37, 38, 39 and 40 of patent No. 1,128,144; plaintiffs charge

infringement by said defendant more particularly of claims [fol. 12] 23, 25, 36, 38, 46, 56, 57, 58, 61, 62, 63, 64, 65 and 66 of patent No. 1,128,145; and plaintiffs charge infringement by said defendant more particularly of claims 2, 4, 5, 6, 7, 8, 9, 10, 12, 13, 15 and 17 of patent No. 1,128,252.

## XXI

The defendant has heretofore had knowledge of said patents hereinbefore specified and of plaintiffs' rights thereunder but the defendant has continued to infringe said patents after and notwithstanding such knowledge. Wherefore plaintiffs pray:

(a) That the defendant, Saranac Automatic Machine Company, be directed to appear and answer this bill of complaint (but not under oath, answer under oath being expressly waived), and to abide by and perform such orders and decrees as the court may deem proper.

(b) That said defendant, Saranac Automatic Machine Company, be required to account to plaintiffs for the profits realized by it and the damages to plaintiffs in the premises; and that this cause be referred to a Master to take an accounting of said profits and damages.

(c) That said defendant, Saranac Automatic Machine Company, and its agents, servants, workmen and all persons in privity with them, and each of them be enjoined and restrained, during the pendency of this suit, and also perpetually, by decree and injunction of this court, from directly or indirectly infringing plaintiffs' said patents Nos. 1,128,144, 1,128,145, 1,128,252, or any of them.

(d) That said defendant be decreed to pay the costs and disbursements of this suit to be taxed.

(e) And that plaintiffs have such other and further relief as to the court may seem meet.

Wirebounds Patents Company, by L. A. Janney, Counsel. 4 One Box Machine Makers, by L. A. Janney, Counsel. L. A. Janney, Edward S. White, Emery, Booth, Janney & Varney, Knappen, Uhl & Bryant, Solicitors and of Counsel for Plaintiffs.

[fol. 13] *Duly sworn to by Edward F. Dunne, Jr. Jurat omitted in printing.*

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IN UNITED STATES DISTRICT COURT

MOTION TO AMEND BILL OF COMPLAINT—Filed April 4, 1925

Now comes plaintiffs in the above-entitled cause and move to amend their bill of complaint on file by striking out the words "Saranac Automatic Machine Company" wherever they may appear, and substituting therefor the words "Saranac Automatic Machine Corporation."

Knappen, Uhl & Bryant, Solicitors and of Counsel for Plaintiffs. L. A. Janney, Edward S. White, Emery, Booth, Janney & Varney, Counsel for Plaintiffs.

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[fol. 14] IN UNITED STATES DISTRICT COURT

ANSWER—Filed April 24, 1925

To the Honorable the Judges of the District Court of the United States for the Western District of Michigan, Southern Division:

The answer of Saranac Automatic Machine Corporation, the above-named defendant, to the bill of complaint exhibited against it by the above-named plaintiffs. This defendant, now and at all times hereafter saving and reserving to itself all and all manner of benefits and advantages of exception which may be had or taken to the many errors, uncertainties, imperfections and insufficiencies in the plaintiffs' said bill of complaint contained, for answer thereunto, or unto so much or such parts thereof as this defendant is advised that it is material or necessary for it to make answer unto, answering says:

1. This defendant admits that it is a corporation duly organized under the laws of the State of Delaware and that it has a regular and established place of business at Benton Harbor, Michigan, in said Western District of Michigan, Southern Division, but defendant denies that it has com-

mitted any acts of infringement, or contributory infringement, or any of the acts complained of, in this district or in any other district.

2. This defendant, further answering, says that letters patent of the United States Nos. 1,128,144, 1,128,145 and 1,128,252 were, on the dates alleged in the bill of complaint, issued to Wirebounds Patents Company as the assignees of Richard G. Inwood and Perry C. Lavenberg, for alleged improvements in Machinery and Methods of Making Boxes, purporting to secure to said assignees, their successors or assigns, for the terms for which said patents were granted, the full and exclusive right and liberty of constructing, using and vending to others to be used, said alleged improvements and inventions as specifically described and shown in the specifications and drawings annexed to and forming a part of said letters patent; but, upon information and belief, this defendant denies that due application for said letters patent, in accordance with the then existing Acts of Congress, was made by said Richard G. Inwood and Perry C. Lavenberg, whereby their alleged asignees, Wirebounds Patents Company, or that said Richard G. Inwood and Perry C. Lavenberg, duly and in all respects complied with the conditions and requirements of said Acts of Con- [fol. 15] gress, but, to the contrary thereof, this defendant alleges that said letters patent were not duly or lawfully applied for, nor lawfully granted or issued; and, upon information and belief, as aforesaid, this defendant denies that said Inwood and Lavenberg were the true, original and first inventors of the said alleged improvements described or claimed, or purported to be described, by said letters patent; and this defendant denies that said alleged improvements or inventions were at the time of said alleged invention thereof by said Inwood and Lavenberg either new or useful, denies that they were not known or used by others in the United States before the said pretended invention thereof by said Richard G. Inwood and Perry C. Lavenberg, and denies that they were not patented or described in any printed publication in this or in any foreign country, and denies that they were not for more than two years prior to the dates of the applications of said Richard G. Inwood and Perry C. Lavenberg for letters patent therefor in public use

or on sale, and denies that said inventions and applications had not been abandoned, as alleged.

3. Further aswering, on information and belief, this defendant denies that said letters patent are valid, and denies infringement thereof, and alleges that all of said letters patent are invalid and void, or in any event limited to specific and impractical and uncommercial machines and methods, for the following reasons, to-wit:

(a) That the pretended inventions and improvements described and claimed in said letters patent were not, at the dates of the alleged inventions by said Richard G. Inwood and Perry C. Lavenberg, patentable improvements, and did not constitute any new art, machine, manufacture or composition of matter under the Acts of Congress in such cases made and provided, and that said alleged improvements, combinations and devices described and claimed in said letters patent did not constitute patentable inventions and discoveries, and were not new or useful, and did not exhibit or require invention to conceive, devise or construct the same.

(b) That the said letters patent did not set forth, exhibit or claim any variation, change, advance, or improvement from or upon the state of the art as it existed at the time of the applications for said letters patent, and at the time of the pretended inventions by said Richard G. Inwood and Perry C. Lavenberg of the alleged improvements therein described and claimed, which constitute any patentable invention, improvement of combination, or which involved or required the exercise of invention; and, further, that the [fol. 16] alleged improvements and inventions described and claimed in the said letters patent consist merely of such changes as the prior state of the art and the circumstances of use would suggest to one skilled in the art to which the said letters patent pertain, and did not require the exercise of invention, but that the same were obvious from the prior state of the art, and that the said Richard G. Inwood and Perry C. Lavenberg did not originate same, but obtained knowledge thereof from the prior state of the art, and that the construction of the things patented at the date when said Richard G. Inwood and Perry C. Lavenberg invented.

or are alleged to have invented, them, were obvious things and required no more than the common knowledge or skill of those skilled in the art to which they belong; and that they were merely matters of common knowledge which any one skilled in the art could have constructed without invention at the date when the said Richard G. Inwood and Perry C. Lavenberg are alleged to have invented them.

(c) That the pretended inventions and improvements described and claimed in said letters patent were by said Richard G. Inwood and Perry C. Lavenberg abandoned.

(d) That the pretended inventions and improvements in said letters patent described and claimed were in public use and on sale in the United States for more than two years prior to the applications of said Richard G. Inwood and Perry C. Lavenberg for letters patent therefor, not only by said Inwood and Lavenberg themselves, and by others with their consent, but also adversely by others.

(e) And this defendant, further answering, alleges, on information and belief, that long prior to any invention by said Richard G. Inwood and Perry C. Lavenberg of the alleged improvements described and claimed in said letters patent sued upon, the same, or substantial and material parts thereof, were disclosed in the following named letters patent, to-wit:

United States Letters Patent

No. 453,479, June 2, 1891, Howenstine;
No. 457,486, October 8, 1895, Greenstreet;
No. 686,329, November 12, 1901, Pollock;
No. 694,275, February 25, 1902, Herz;
No. 832,564, October 2, 1906, Wilder;
No. 768,123, August 23, 1904, Healy;
No. 608,809, August 9, 1898, Uhri;
[fol. 17] No. 608,796, August 9, 1898, Rosback;
No. 608,917, August 9, 1898, Rosback;
No. 609,630, August 23, 1898, Rosback;
No. 614,348, November 15, 1898, Rosback;
No. 623,258, April 18, 1899, Rosback;
No. 625,958, May 30, 1899, Rosback;
No. 636,068, October 31, 1899, Rosback;

No. 630,303, August 2, 1899, Rosback;
No. 579,574, March 30, 1897, Greenstreet;
No. 661,481, November 13, 1900, Averill;
No. 722,423, March 10, 1903, Greenstreet;
No. 801,998, October 17, 1905, Lipps & Springer;
No. 763,579, June 28, 1904, Walker;
No. 767,613, August 16, 1904, Walker;
No. 501,088, July 11, 1893, Leaver;
No. 396,165, January 15, 1889, Linderman;
No. 260,357, July 4, 1882, Bartram;
No. 773,824, November 1, 1904, Thalheimer;
No. 309,992, December 30, 1884, Stone;
No. 373,828, November 28, 1887, Hamilton;
No. 486,297, November 15, 1894, Ramsey;
No. 309,297, December 16, 1884, Foster;
No. 652,357, June 26, 1900, Greenstreet;
No. 1,276,484, August 20, 1918, Brown;
No. 799,854, September 19, 1905, Inwood & Lavenberg;
No. 102,232, April 26, 1870, Cronin;
No. 659,772, October 16, 1900, Stuckenberg;
Reissue No. 12,725, November 26, 1907, Inwood & Lavenberg;
No. 303,778, August 19, 1884, Wilson;
No. 410,034, August 27, 1889, Schunk;
No. 441,326, November 25, 1890, Patterson;
No. 451,549, May 5, 1891, Baker;
No. 476,237, June 7, 1892, Baker;
No. 518,038, April 10, 1894, Knudtson & Uhri;
No. 538,021, April 23, 1895, Jonas;
No. 579,574, March 30, 1897, Greenstreet;
No. 625,213, May 16, 1899, Snell;
No. 636,806, November 14, 1899, Johnstone;
No. 666,872, January 29, 1901, Maltby;
No. 690,416, January 7, 1902, Fuller;
No. 694,467, March 4, 1902, Fuller;
No. 712,434, October 28, 1902, Fiske;
No. 715,371, December 9, 1902, Hahn;
No. 806,411, December 5, 1905, Inwood & Lavenberg;
No. 815,197, March 13, 1906, Miller;
No. 827,097 July 31, 1906, Healy;
[fol. 18] No. 864,955, September 3, 1907, Craig;

No. 1,208,297, December 12, 1916, Craig;
No. 1,258,989, March 12, 1918, Craig;

and in other letters patent and publications now unknown to this defendant but which, when known, defendant prays leave, by proper amendment, to insert in this answer.

4. Further answering, on information and belief, defendant denies that the inventions of said patents sued upon, and each of them, have long been and are now generally recognized and of great utility and value; denies that the pretended inventions of the patents sued upon have been extensively applied to use in the wirebound box industry, denies that they have afforded the basis of new and highly successful means and methods of expeditiously and economically producing such boxes; denies that the licensees of the plaintiffs and their predecessors have made, and are now making, millions of boxes by the use of said pretended inventions, and denies that the licensees of the plaintiffs and their predecessors are using or have ever used machines and methods of the patents sued upon; this defendant, on information and belief, says that the plaintiffs herein and their licensees are not using the alleged or pretended inventions of the patents sued upon, but on the contrary, said plaintiffs and their licensees are themselves using other things which are different from the machines and method of said patents, and denies that the alleged inventions or disclosures of these patents form the basis of or are in any way responsible for any success or popularity attained or enjoyed by the wirebound box industry, and says that the machinery and methods disclosed by said patents herein sued upon are impractical and inoperative, and were promptly abandoned by said Inwood & Lavenberg and their assignees, and were displaced by other and different machinery and methods found to be necessary or essential to the commercial production of wirebound boxes; and says that the establishing of the wirebound box industry was not because of said patents, or the alleged or pretended inventions disclosed therein, but, on the contrary, was due entirely to other causes.

5. Further answering, on information and belief, this defendant says that it was fully aware of plaintiffs' patents sued upon but had been advised that the wirebound

box-blank machines manufactured by defendant, complained of by plaintiffs, were no infringement of the patents sued [fol. 19] upon, and had been advised that the making of box blanks on these machines, by the users of defendant's machines, was no infringement of any of said patents, but, on the contrary, are in accordance with and covered by certain other patents then and now owned by this defendant, to-wit:

No. 1,208,297, dated December 12, 1916, for Box and Process of Manufacture Thereof, granted to Edward Craig;

No. 1,258,989, dated March 12, 1918, for Wirebound Box-Blank Machine, granted to Edward Craig;

No. 1,384,239, dated July 12, 1921, for Box-Blank Machine, granted to Edward Craig;

No. 1,132,515, dated March 6, 1915, for Box Blank Machine, granted to Edward Craig; and

No. 1,254,779, dated January 29, 1918, for Wirebound Crate Side Machine, granted to Edward Craig and William H. Ray, which defendant believes is true; and defendant denies that the respective and pretended inventions of said patents sued upon are susceptible of conjoint embodiment and use in a single mechanical organization, and of conjoint use with each other, and denies that they have been conjointly embodied and used by the defendant in infringement of said patents; and defendant denies that since the respective dates of issuance of said patents sued upon, and since the plaintiffs acquired their respective title to and exclusive rights under said patents, as alleged in the bill of complaint, and prior to the filing of the bill of complaint, or at any time, or in defiance of said patents and the plaintiffs' rights thereunder the defendant herein (Saranac Automatic Machine Corporation) has made or caused to be made and has used and sold and is still making, using and selling within said Western District of Michigan, South Division, and elsewhere within the United States, any box-blank machines or methods embodying any of the pretended inventions described and claimed in the patents sued upon; and, further answering, says that it has not constructed, nor caused to be constructed, or used, and is not using, any machines embodying and conjoining the alleged inventions described and claimed in the patents sued upon; and denies that it has used, or is still using,

the alleged method or anything disclosed in the patent No. 1,128,252, either within said District or elsewhere in the United States, and denies that it has committed any infringement of said patents or any of them, and defendant denies that it has derived or continues to derive unlawful and [illegible] gains and profits from any infringement of said patents sued upon, or any of them, and denies that plaintiffs have suffered and are further threatened with irreparable damage by reason of any infringements, and denies that it threatens to continue any unlawful acts or any infringement of the patents sued upon.

6. Further answering, on information and belief, this defendant denies that the plaintiffs have duly and properly [illegible] large sums of money, or have been put to great trouble and expense in and about the prosecution of the suits of said patents [illegible] of them, for the purpose of introducing the same into use and making the same profitable to the plaintiffs and to the public, and denies that the public has acquiesced to any extent acquiesced in the rights of the plaintiffs under said patents, or any of them, and denies that the [illegible] in the United States, operating a [illegible] of plaintiffs, have taken licenses under said patents to manufacture and sell or use the boxes, or to use the machines and methods of the patents sued upon, and denies that such things, as alleged in the bill of complaint, [illegible] or have any bearing on the question of the alleged validity or infringement of the patents sued upon, or the alleged liability of the defendant herein, and denies that those allegations by plaintiffs [illegible] ought not to obtain or establish the validity of any of the patents sued upon, or any infringement thereof by the machines manufactured by the defendant herein.

7. This defendant, further answering, upon information and belief, alleges, by reason of their laches, and further by reason of their acquaintance in and with the acts and doings of this defendant and others, said plaintiffs are forever estopped from enforcing any right of action which they or their assignors have or may have had against this defendant.

8. Further answering, on information and belief, defendant says that the alleged inventions claimed in the

patents herein sued upon are substantially different from anything indicated, suggested or described in the original application therefor; that said alleged inventions of the patents sued upon were not made jointly by said Inwood and Lavenberg; that the descriptions of the alleged inventions in the specifications of the patents herein sued upon are not in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which [illegible] they appertain, or to which they are most nearly connected, to make, construct, compound and use the same; that the claims of the patents sued upon by plaintiffs are not distinct; that the disclosures of said patents sued upon are inoperative and were intentionally made so by deliberate refusal of said Inwood and Lavenberg to disclose therein certain elements essential for the operation and commercial use thereof, and for the purpose of deceiving the public the applications filed by them were made to contain less than the whole truth relative to their alleged invention, and that the patents sued upon are invalid for this reason; that the application upon which patent No. 1,128,252 herein sued upon was granted was not a true and lawful division of application Serial No. 228,447, but is for a different alleged invention from that disclosed in said original application and is different from the alleged inventions originally disclosed in any and all of the applications of the patents sued upon; that the matter attempted to be covered by said method patent sued upon, No. 1,128,252, was not a statutory subject of a patent; that said method patent sued upon is invalid in view of and because of double patenting with the other patents herein sued upon, and is invalid because for the same invention shown and described and claimed in reissue patent No. 12,725, granted to said Inwood and Lavenberg; that said method patent sued upon is invalid because of the intervening rights of defendant herein, and of others, prior to the filing of the unduly and unlawfully delayed and pretended divisional application therefor; and that for these reasons the patents sued upon are invalid and of no force and effect as against this defendant.

9. Further answering, defendant denies that plaintiffs are entitled to any relief whatsoever, or any part of the relief in said bill of complaint demanded, and alleges that plaintiffs have no standing in any court of equity.

10. Further answering, defendant says that it has never manufactured any wirebound boxes, in this or any other District; that it has never used any of the wirebound box-blank machines complained of, in this District or in any other District, and says that none of its machines complained of in the bill of complaint are now in use in this District, or have ever been in use in this District by it or by others, and denies the allegations of paragraphs XVI, XVII and XVIII, and denies that it has ever licensed, instigated, induced, enabled, aided, abetted and concerted with others, or is continuing to license, instigate, induce, enable, aid, abet and concert with others to use any of the [fol. 22] machines complained of in this District, or anywhere within the jurisdiction of this court or is threatening so to do, and says that the method complained of in the bill of complaint is not now and never has been used by it, or by others with its knowledge or consent, in this District, and says that the court has no jurisdiction, therefore, in so far as patent No. 1,128,252 is concerned, because none of the alleged infringing acts complained of under patent No. 1,128,252 were committed in this District, and prays that this patent No. 1,128,252 be dismissed out of the case, and that this part of the bill be dismissed for want of jurisdiction.

11. Further answering, defendant denies all and all manner of unlawful acts whatsoever, whereof it is in any wise by the said bill of complaint charged; all of which matters and things this defendant is ready and willing to prove as this Honorable Court shall direct, and prays to be hence dismissed with its reasonable costs and charges in this behalf most wrongfully sustained.

Saranac Automatic Machine Corporation, by Rice & Rice, Solicitors and of Counsel for Defendant, 1208-1210 Grand Rapids Sav. Bk. Bldg., Grand Rapids, Michigan.

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In United States District Court

Defendant's Interrogatory—Filed April 24, 1925

Now comes defendant and in pursuance with Equity Rule 58 submits the following interrogatory to the plaintiffs to

be answered by Edward F. Dumme, Guilford C. Babcock or any other officer of plaintiffs having knowledge of the facts:

Are the machines and devices complained of and the method complained of the same or substantially the same as in the suit of these plaintiffs against H. R. Gibbons Box Company now pending in the U. S. District Court for the Northern District of Illinois, Eastern Division?

Wm. Cyrus Rice, for Rice & Rice, Attorneys for Defendant, 1208-1210 Grand Rapids Sav. Bk. Bldg., Grand Rapids, Michigan.

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[fol. 23] IN UNITED STATES DISTRICT COURT

PLAINTIFFS' REPLY TO DEFENDANT'S INTERROGATORY APPENDED TO THE ANSWER—Filed May 14, 1925

Defendant's interrogatory is as follows:

"Are the machines and devices complained of and the method complained of the same or substantially the same as in the suit of these plaintiffs against H. R. Gibbons Box Company now pending in United States District Court for the Northern District of Illinois, Eastern Division?"

STATE OF ILLINOIS,
County of Cook, ss:

Daniel P. Murphy, being first duly sworn, deposes and says as follows:

I am president of Wirebounds Patents Company, one of the plaintiffs in the above-entitled suit; and I have knowledge of the facts inquired of in defendant's above-quoted interrogatory.

Answering defendant's interrogatory:

In the present suit, plaintiffs charge infringement not only by machines, devices and methods substantially the same as those complained of in the suit against the H. R. Gibbons Box Company, but also by substantially different methods and by functionally different machines.

For example, the machines, devices and methods complained of in the suit against the H. R. Gibbons Box Com-

pany related to the making of a flat form of blank having side material for all four sides of the box but cleats for only two sides of the box. In other words, in the flat form of the blank, as made upon the blank machine complained of in that suit, the side sheets for two sides of the box were left wholy uncleated.

In the present suit, the defendant has infringed in respect of machines and methods for making this semi- or alternate-cleated flat blank and has also infringed in respect of machines, devices and methods for producing flat blanks (the immediate products of the blank machine complained of) in which all four side sheets are cleated.

In the suit against the H. R. Gibbons Box Company, the defendant argued insistently that the omission of two pairs of cleats from the flat blank dealth with by the blank machine and the omission of positioning devices for those [fol. 24] cleats, should be held to avoid infringement of the machine patents in suit; and that the incorporating of two pairs of cleats at one stage of the box-making method, and of the other two pairs of cleats at another stage of the box-making method: should be held to avoid infringement of the method patent in suit. This argument may have contributed to the conclusions of the trial judge in the suit against the H. R. Gibbons Box Company upon which his Honor, without writing an opinion, ordered that the bill be dismissed for want of equity.

No such argument, however, can be made in favor of the second and new infringement complained of in the present suit in which all the cleats and all of the side sheets are assembled in the flat blank upon the blank machine and at the same stage in the method.

Thus two comparatively distinct infringements involving different respective mechanical functions and different sequences of method procedure, are charged in the present suit. And only one of these two species of infringement was in issue in the H. R. Gibbons Box Company suit.

Daniel P. Murphy.

Subscribed and sworn to before me this 13th day of May, 1925. A. Trevor Jones, Notary Public. (Seal.)

## In United States District Court

Supplement Bill of Complaint—Filed September 24, 1925

To the Honorable the Judges of the District Court of the United States for the Western District of Michigan, Southern Division.

The plaintiffs, Wirebounds Patents Company and 4-One Box Machine Makers, bring this, their supplemental bill of complaint against Saranac Automatic Machine Corporation, defendant in the above-entitled cause.

And plaintiffs aver:

[fol. 25]

I

On or about March 16, 1925, plaintiffs filed in this court, their original bill of complaint against Saranac Automatic Machine Corporation, defendant, alleging infringement by said defendant of letters patent Nos. 1,128,144, 1,128,145 and 1,128,252, each and all issued in due form of law on February 9, 1915, pursuant to respective joint applications of Richard G. Inwood and Perry C. Lavenberg, as alleged in paragraphs III to VIII inclusive of said original bill of complaint.

II

Prior to the filing of this supplemental bill of complaint and prior to the acts of infringement hereinafter complained of (as alleged in paragraphs IX to XIV inclusive of said original bill of complaint), the plaintiff, Wirebounds Patents Company became, and has ever since continued to be the sole owner of the legal title of said patents Nos. 1,128,144, 1,128,145 and 1,128,252; and the plaintiff, 4-One Box Machine Makers, became, and has ever since continued to be the exclusive licensee under said patents Nos. 1,128,144, 1,128,145 and 1,128,252.

III

On or about April 24, 1925, the said defendant appeared and filed its answer to the aforesaid original bill of complaint; thereafter, pursuant to a stipulation filed May 20,

1925, depositions were taken by and other evidence was introduced on behalf of the respective parties. On or about September 21, 1925, the above-entitled cause came on for final hearing in this court and was argued by counsel for the respective parties.

IV

After the filing of the aforesaid original bill of complaint, plaintiffs discovered that the herein named defendant has committed further acts of infringement direct and/or contributory, of said patents Nos. 1,128,144, 1,128,145 and 1,128,252, and, upon such discovery, plaintiffs charge it to be the fact that, prior to and within six years next preceding the filing of this supplemental bill of complaint, and in defiance of said patents and the plaintiffs' rights thereunder, and after well knowing plaintiffs' rights in the premises, the herein named defendant has made or caused to be made, and has used, and/or sold, and/or leased, and/[fol. 26] or licensed, and/or delivered for use by others, and is still making, using and/or selling, and/or leasing, and/or licensing, and/or delivering for use by others, within said Western District of Michigan, Southern Division, and elsewhere in the United States, machines and devices for making 8-cleated flat blanks for wirebound boxes, said machines and devices embodying the invention described and claimed in and patented by said patents Nos. 1,128,144 and 1,128,145; and, in furtherance of said infringement of said patents Nos. 1,128,144 and 1,128,145, said defendant has licensed, instigated, induced, enabled, aided, abetted, and concerted with others, and is continuing to license, instigate, induce, enable, aid, abet and concert with others to use said machines and devices for making 8-cleated wirebound boxes, all within said district and elsewhere in the United States, and in infringement of said patents and each of them.

And well knowing that the machines or devices for making said 8-cleated flat blanks, vended, leased or licensed to others to be used in the infringement of the inventions of said patents Nos. 1,128,144, 1,128,145, would be and are used by defendant's vendees, lessees or licensees for using the method invention described and claimed in said patent

No. 1,128,252, the herein-named defendant within said district and elsewhere in the United States has vended, and/or leased, and or licensed, and or delivered to others to use said machines or devices, with the knowledge and intent that said machines or devices be used by said others to practice the method invention of said patent No. 1,128,-252, and has instigated, induced, enabled, aided, abetted, and concerted with, and is instigating, inducing, enabling, aiding, abetting and concerting with, said others to use methods of making 8-cleated flat blanks and wirebound boxes made from 8-cleated flat blanks, said methods embodying the invention described and claimed in and patented by said patent No. 1,128,252, and in infringement of said patent.

Defendant has derived and continues to derive, unlawful gains and profits from said infringement of said patents Nos. 1,128,144, 1,128,145 and 1,128,252, and each of them, and plaintiffs have suffered and are further threatened with irreparable damage by reason of said infringement. Defendant threatens to continue all said acts above complained of.

[fol. 27] By reason of the inequitable and unlawful acts of the defendant hereinbefore complained of in Section IV of this bill, plaintiffs charge infringement by said defendant more particularly of claims 6, 11, 13, 14, 26, 34, 37, 38, 39 and 40 of patent No. 1,128,144; plaintiffs charge infringement by said defendant more particularly of claims 23, 25, 36, 38, 46, 56, 57, 58, 61, 62, 63, 64, 65 and 66 of patent No. 1,128,145; and plaintiffs charge infringement by said defendant more particularly of claims 2, 4, 5, 6, 7, 8, 9, 10, 12, 13, 15 and 17 of patent No. 1,128,252.

## VI

The defendant has heretofore had knowledge of said patents hereinbefore specified and of plaintiffs' rights thereunder, but the defendant has continued to infringe said patents after and notwithstanding such knowledge. Wherefore plaintiffs pray:

(a) That plaintiffs may have the benefit of the pleadings, evidence and proceedings heretofore had in this cause, and that the testimony and evidence heretofore adduced in this

cause shall be deemed to have been taken under both said original bill and this supplemental bill.

(b) That the defendant, Saranac Automatic Machine Corporation, be directed to appear and answer this supplemental bill of complaint (but not under oath, answer under oath being expressly waived) and to abide by and perform such orders and decrees as the court may deem proper.

(c) That said defendant, Saranac Automatic Machine Corporation, be required to account to plaintiffs for the profits realized by it and the damages to plaintiffs in the premises; and that this cause be referred to a Master to take an accounting of said profits and damages.

(d) That said defendant, Saranac Automatic Machine Corporation, and its agents, servants, workmen and all persons in privity with them, and each of them be enjoined and restrained, during the pendency of this suit, and also perpetually, by decree and injunction of this court, from directly or indirectly infringing plaintiffs' said patents Nos. 1,128,144, 1,128,145 and 1,128,252 or any of them.

(e) That said defendant be decreed to pay the costs and disbursements of this suit to be taxed.

[fol. 28] (f) And that plaintiffs have such other and further relief as to the court may seem meet.

Wirebounds Patents Company, by Edward S. White, of Counsel. 4 One Box Machine Makers, by Edward S. White, of Counsel. L. A. Janney, Counsel for Plaintiffs. Howard S. Laughlin, Emery, Booth, Janney & Varney, Knappen, Uhl & Bryant, of Counsel.

*Duly sworn to by Daniel P. Murphy. Jurat omitted in printing.*

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[fol. 29] IN UNITED STATES DISTRICT COURT

ORDER GRANTING LEAVE TO FILE SUPPLEMENTAL BILL, ETC.—September 25, 1925.

This cause having come on to be heard on plaintiff's motion for leave to file supplemental bill, and for other relief,

and counsel for the respective parties having been heard in argument on said motion, now therefore,

It is ordered, that plaintiffs have leave to file, on or before September 24, 1925, nunc pro tunc as of May 27, 1925, a supplemental bill for the purpose of charging this defendant with infringement, direct and or contributory, of the patents in suit under the original bill, by making, using, selling, and or licensing to be used, machines for making eight-cleated flat blanks, and practicing, causing to be practiced, assisting and or contributing to the practice of methods of making eight cleated flat blanks and boxes made from eight-cleated flat blanks; and for the purpose of praying against such infringement the same relief prayed in the original bill.

And it is further ordered, that all testimony and evidence heretofore adduced in this cause shall be deemed to have been taken both under the original bill and under said supplemental bill; that defendant shall answer said supplemental bill within five (5) days after service of a copy of the same on defendant's counsel; and that, if defendant desires to take any testimony on the issue joined under supplemental bill, such testimony shall be completed within ten (10) days after defendant shall have filed its answer to said supplemental bill.

And it is further ordered, that plaintiffs shall have fifteen (15) days from the date of expiration of defendant's time to take testimony under said supplemental bill, in which to file their brief, and that defendant shall have fifteen (15) days from the time of service of a copy of plaintiffs' brief on defendant's counsel, in which to file its brief.

Fred M. Raymond, United States District Judge.

September 25, 1925.

Received a copy of the above order September 24, 1925.

Cheever & Cox, Counsel for Defendant.

[fol. 30] IN UNITED STATES DISTRICT COURT

ANSWER TO SUPPLEMENTAL BILL—Filed September 29, 1925.

To the Honorable the Judges of the District Court of the United States for the Western District of Michigan, Southern Division:

The answer of Saranac Automatic Machine Corporation, the above-named defendant, to the supplemental bill of complaint exhibited against it by the above-named plaintiffs.

This defendant, now and at all times hereafter saving and reserving to itself all and all manner of benefits and advantages of exception which may be had or taken to the many errors, uncertainties, imperfections and insufficiencies in the plaintiffs' said bill of complaint contained, for answer thereto, or unto so much or such parts thereof as this defendant is advised that it is material or necessary for it to make answer unto, answering says:

1. This defendant admits that, subsequent to the filing of the original bill of complaint, some of defendant's licensees have been manufacturing eight-cleated blanks which are, so defendant says, on information and belief, substantially the same as the four-cleated blanks complained of in the original bill of complaint, and the same as those complained of in the Gibbons suit, except that in the manufacture of these eight-cleated blanks two previously cleated sections are employed for each blank; says, on information and belief, that these eight-cleated blanks are made on the same machines upon which the four-cleated blanks are made, without any material change in the work feeding and guiding means, and without increasing the number of cleat pushers for each blank, each eight-cleated blank being made by using four cleat pushers for each blank, and by the same cleat-pusher method employed in the making of the four-cleated blanks complained of; says that it is not a user of its wire-bound box-blank machines, and is not a manufacturer of wire-bound boxes of any kind or description, and has manufactured no such boxes; says that it has no licensees or users of its machine or methods anywhere within the jurisdiction of this court, or anywhere in the state of Michigan; says that the only instances of the

use of the said cleat-pusher method, for the manufacture of the said eight-cleated blanks complained of in the sup- [fol. 31] plemental bill of complaint, so far as it can discover, on information and belief, are outside of the State of Michigan, and beyond the jurisdiction of this court; says, on information and belief, that none of the machines upon which any of its licensees have been making eight-cleated blanks were manufactured and supplied to said licensees subsequent to the filing of the original bill of complaint; says that all of the defenses set up in the answer to the original bill of complaint are applicable to the supplemental bill of complaint, wherefore, defendant here and now repeats the statements and allegations of said answer to said original bill of complaint, as against the averments of the supplemental bill of complaint, and adopts them as its answer thereto.

2. Further answering, this defendant says that the charge of infringement, by the manufacturer of eight-cleated blanks by some of defendant's licensees, is misleading inasmuch as eight-cleated blanks are now public property, plaintiffs' reissue patent No. 12,725 having expired, and says that because of the expiration of this patent, defendant's licensees are now at liberty to make eight-cleated blanks, by the method shown and described in this expired patent, which method is merely the obvious and necessary method of making the blank shown and described in this expired patent, and says that this expired reissue patent is a complete defense to the so called method patent in suit.

3. Further answering, defendant denies that plaintiffs are entitled to any relief whatsoever, or to any part of the relief in said supplemental bill of complaint demanded, and, except for the matters admitted to be true in paragraph 1 of this answer, denies all of the allegations of Section IV of the supplemental bill of complaint; denies that any of its machines or methods complained of are an infringement of any of the patents in suit, and denies that any of its machines have been manufactured and delivered to its licensees, or to others, with the intent that said machines were to be used to practice the method invention of patent No. 1,128,252, and denies that the method of this patent has ever been practiced on any of its machines at any time or at any place; denies the allegations of the last paragraph

of Section IV of the supplemental bill of complaint; and denies the charges and allegations of Section V of the supplemental bill of complaint.

4. Further answering, defendant denies all and all manner of unlawful acts whatsoever, whereof it is in any wise [fol. 32] by the said supplemental bill of complaint charged; denies the charges and allegations of Section VI of the supplemental bill of complaint; says, to the contrary, that plaintiffs, prior to the bringing of this suit, had never given any notice of infringement and had never made any demand on defendant to ceases the manufacture of its machines, or to cease the use thereof by its licensees for the making of wirebound box blanks and boxes; all of which matters and things this defendant is ready and willing to prove as this Honorable Court shall direct, and prays to be hence dismissed with its reasonable costs and charges in this behalf most wrongfully sustained.

Saranac Automatic Machine Corporation, by Rice & Rice, Solicitors for Defendant. Dwight B. Cheever, Howard M. Cox, of Counsel for Defendant.

September 29, 1925.

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In United States District Court

Order Granting Plaintiffs Leave to File Plaintiffs' Exhibit No. 27 Filed October 26, 1925.

This cause, having come on to be heard on plaintiffs' motion for leave to file its Exhibit No. 27, now therefore

It is ordered that, pursuant to the stipulation entered into between the parties on May 19, 1925, plaintiffs have leave to file nunc pro tunc as of September 21, 1925, the date of hearing of the above-entitled cause, Plaintiffs' Exhibit No. 27, printed copy of plaintiffs' record, together with the exhibits offered therein, in the suit of Wirebounds Patents Company and Acme Box Machine Makers, plaintiffs, vs. H. R. Gibbons Box Company, defendant, in the U. S. District Court for the Northern District of Illinois, Eastern Division, in Equity No. 2689.

And it is further ordered that plaintiffs' said Exhibit No. 27 is received in evidence with the same force and effect, as if said exhibit had been offered on August 25, 1925, the date of the beginning of the session for the taking [fol. 33] of plaintiffs' rebuttal proofs, and had been received in evidence and filed on said date of hearing.

Fred M. Raymond, United States District Judge.

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In United States District Court

Supplement to Answer to First Supplemental Bill of Complaint—Filed April 9, 1926

To the Honorable, the Judges of the District Court of the United States, for the Western District of Michigan, Southern Division:

The Saranac Automatic Machine Corporation, the above-named defendant hereby supplements its answer to plaintiffs' first supplemental bill of complaint.

And defendant avers that subsequent to the filing of its original answer to the first supplemental bill of complaint patents were issued and delivered to it as assignee of Edward Craig, to-wit: Patent No. 1,555,189, granted September 29, 1925, for "Method and Apparatus for Making Wirebound Boxes"; patent No. 1,562,413, granted November 17, 1925, for "Method of Making Wirebound Box Blanks," copies of which are hereto attached; and defendant denies that its so-called precleating methods, and machines for practicing the so-called precleating methods, alleged in the first supplemental bill of complaint to be an infringement of the patents in suit, are like or in any way similar to the said patents in suit, and avers, to the contrary, that its said precleating methods and machines for practicing the precleating methods are like and follow the teachings of its own patents hereinabove specified.

Saranac Automatic Machine Corporation, by Cheever & Cox, of Counsel.

[fol. 34] IN UNITED STATES DISTRICT COURT

ORDER GRANTING LEAVE TO FILE SECOND SUPPLEMENTAL BILL, ETC.—Filed April 9, 1926.

This cause having come on to be heard on plaintiff's motion for leave to file its second supplemental bill of complaint, and on defendant's motion for leave to file a supplemental answer to the first supplemental bill of complaint in this cause, and to reopen the record, and counsel for the respective parties having been heard in argument on their respective motions, now therefore—

It is ordered, that plaintiffs have leave to file forthwith, their second supplemental bill of complaint for the purpose of charging the defendant in this cause with infringement, direct and/or contributory, of the patents in suit under the original bill, and/or under the first supplemental bill, by making, using, selling, and/or licensing to be used, machines for making eight-cleated flat blanks by the assembly and wiring together of eight loose cleats and four loose side sheets, and practicing, causing to be practiced, assisting, and/or contributing to the practice of methods of making eight-cleated flat blanks and boxes made from eight-cleated flat blanks, by the assembly and wiring together of eight loose cleats and four loose side sheets; and for the purpose of praying against such infringement the same relief prayed in the original bill and the first supplemental bill.

And it is further ordered that the respective parties may have the benefit of all pleadings, evidence and proceedings heretofore had in this cause and that the testimony and evidence heretofore adduced in this cause shall be deemed to have been taken both under the original bill and under said first supplemental bill, and under said second supplemental bill; and that defendant shall answer said second supplemental bill within fifteen days of the date of filing of the same.

And it is further ordered that defendant shall have leave to file its supplement to answer to the first supplemental bill of complaint.

And it is further ordered that plaintiffs shall have sixty days from the time of filing of defendant's answer within

which to take depositions, that defendant's depositions shall be taken within thirty days from the expiration of the time for the filing of plaintiffs' depositions, and that plaintiffs' rebuttal depositions shall be taken within twenty days from [fol. 35] the expiration of the time for the filing of defendant's depositions.

Raymond, United States District Judge.

April 9, 1926.

The above is approved as to form.

L. A. Janney, Counsel for Plaintiffs. Cheever & Cox, Counsel for Defendant.

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In United States District Court

Second Supplemental Bill of Complaint—Filed April 9, 1926

To the Honorable, the Judges of the District Court of the United States, for the Western District of Michigan, Southern Division:

The plaintiffs, Wirebounds Patents Company and 4-One Box Machine Makers, bring this, their second supplemental bill of complaint against Saranac Automatic Machine Corporation, defendant in the above-entitled cause.

And plaintiffs aver:

I

On or about March 16, 1925, plaintiffs filed in this court, their original bill of complaint against Saranac Automatic Machine Corporation, defendant, alleging infringement by said defendant of letters patent Nos. 1,128,144, 1,128,145 and 1,128,252, each and all issued in due form of law on February 9, 1915, pursuant to respective joint applications of Richard G. Inwood and Perry C. Lavenberg, as alleged in paragraphs III to VIII, inclusive, of said original bill of complaint.

II

Prior to the filing of this second supplemental bill of complaint and prior to the acts of infringement hereinafter

complained of, the plaintiff, Wirebounds Patents Company, [fol. 36] became, and has ever since continued to be, the sole owner of the legal title to said patents Nos. 1,128,144, 1,128,145 and 1,128,252; and the plaintiff, 4-One Box Machine Makers, became, and has ever since continued to be the exclusive licensee under said patents; all as alleged in paragraphs IX to XIV, inclusive, of said original bill of complaint.

III

On or about April 24, 1925, said defendant appeared and filed its answer to the aforesaid original bill of complaint. Thereafter depositions were taken by and other evidence was introduced on behalf of the respective parties. On or about September 21, 1925, said cause came on for final hearing in this court and was argued by counsel for the respective parties. At the date of this second supplemental bill, this cause remains undecided.

IV

After the filing of said original bill of complaint, plaintiffs discovered proof that said defendant had committed further acts of infringement, direct and contributory, of said patents; and in respect of such further acts of infringement, and with leave of court under an order entered September 25, 1925, plaintiffs filed their first supplemental bill of complaint, nunc pro tunc as of May 27, 1925.

V

Plaintiffs' general charge of infringement in said original bill of complaint related largely to the machines and method made, used, leased and promoted by defendant for the making of the so-called "alternate-cleated" blanks and boxes, having two pairs of cleats secured to the flat blank and two other pairs of cleats secured to the end pieces of the box. Plaintiffs' charge of infringement in said first supplemental bill related to the machines and method made, used, leased and promoted by defendant for the making of the so-called "pre[illegible]eated" blanks and boxes, having two pairs of cleats preliminarily tacked to two side sheets which were thereafter assembled with two pairs of loose cleats and two loose side sheets, the assembly as a whole

being then wired to form an 8-cleated and four sided foldable wirebound box blank.

[fol. 37] VI

Since the filing of said original bill of complaint and since the filing of said first supplemental bill of complaint (as plaintiffs have discovered since said dates), defendant has committed and promoted a further species of infringement directed to the making of a wirebound foldable box blank by the assembly and wiring together of eight loose cleats and four loose side sheets, assembled and wired together in workholding apparatus and in a blank machine and in accordance with a method the same as or equivalent to the subjects-matter disclosed and claimed in the respective workholder, blank machine and method patents here in suit. Wherefore, promptly upon plaintiffs' discovery as aforesaid of said new species of infringement, plaintiffs charge the fact to be that, since the filing of said original bill of complaint and since the filing of said first supplemental bill and prior to the filing of this second supplemental bill and within six years next preceding the filing of this second supplemental bill, said defendant, without leave or license of these plaintiffs, and in infringement of each of said patents Nos. 1,128,144 and 1,128,145, has made or caused to be made, and has used, and/or sold, and/or leased, and/or licensed, and/or delivered for use by others, and is still making, using and/or selling, and/or leasing, and/or licensing, and/or delivering for use by others, within said Western District of Michigan, Southern Division, and elsewhere in the United States, machines and devices for making 8-cleated blanks for wirebound boxes by the assembly in the blank machine of eight loose cleats and four loose side sheets, said machines and devices embodying the inventions described and claimed in and patented by said patents Nos. 1,128,144 and 1,128,145; and, in furtherance of said infringement of said patents Nos. 1,128,144 and 1,128,145, and in contributory infringement thereof and of said method patent No. 1,128,252, said defendant has licensed, instigated, induced, enabled, aided and abetted others, and has concerted with others, to use said machines and devices for making 8-cleated blanks for wirebound boxes by assembling in the blank machine eight loose cleats

and four loose side sheets, and by wiring them together to produce 8-cleated foldable wirebound box blanks, all within said district and elsewhere within the United States, and in direct and contributory infringement of said patents and [fol. 38] each of them. Well knowing that the machines and devices aforesaid vended, leased or licensed by defendant to others to be used in infringement of said patents Nos. 1,128,144 and 1,128,145, would be and are used by defendant's vendees, lessees and licensees for practicing the method invention described and claimed in said patent No. 1,128,252, said defendant, in contributory infringement of said patent No. 1,128,252, within the time aforesaid, and within said district and elsewhere within the United States, has vended, leased, licensed and or delivered to others to use, said machines and devices with the knowledge and intent upon the part of defendant that said machines and devices would be and are used by said others for practicing the method invention described and claimed in said patent No. 1,128,252, in direct infringement by said others of said last-named patent; and defendant, with the knowledge and intent aforesaid, and in contributory infringement of said patent No. 1,128,252, has instigated, induced, enabled, aided and abetted others, and has concerted with others, and continues to instigate, induce, enable, aid and abet others and to concert with others, to use methods embodying and employing the invention described and claimed in said patent No. 1,128,252 for making 8-cleated blanks for wirebound boxes by assembling eight loose cleats and four loose side sheets, and for making wirebound boxes from such blanks. And defendant threatens to continue doing all the things aforesaid complained of in this paragraph.

## VII

By reason of the inequitable and unlawful acts of the defendant hereinbefore complained of in Section VI of this supplemental bill, plaintiffs charge infringement by said defendant more particularly of claims 6, 11, 13, 14, 26, 34, 37, 38, 39 and 40 of patent No. 1,128,144; plaintiffs charge infringement by said defendant more particularly of claims 23, 25, 36, 38, 46, 56, 57, 58, 61, 62, 63, 64, 65 and

66 of patent No. 1,128,145; and plaintiffs charge infringement by said defendant more particularly of claims 2, 4, 5, 6, 7, 8, 9, 10, 12, 13, 15 and 17 of patent No. 1,128,252.

## VIII

Defendant has derived and continues to derive, unlawful gains and profits from said further acts of infringement, and the plaintiffs have suffered, and are suffering, great [fol. 39] loss and injury thereby and will be irreparably damaged unless said further acts of infringement be enjoined and restrained by this court.

To the end, therefore, that the defendant may show why the plaintiffs may not have the relief hereby prayed, and may answer fully and truly to all the matters herein stated (but not under oath, an aswer under oath being expressly waived), and that the plaintiffs may have the same relief against the defendant as they might have had if the facts hereinbefore stated and charged by way of supplement had been stated in the plaintiffs' original bill of complaint, the plaintiffs pray:

(a) That plaintiffs may have the benefit of the pleadings, evidence and proceedings heretofore had in this cause, and that the testimony and evidence heretofore adduced in this cause shall be deemed to have been taken under both said original bill and this second supplemental bill.

(b) That the defendant, Saranac Automatic Machine Corporation, be directed to appear and answer this second supplemental bill of complaint (but not under oath, answer under oath being expressly waived) and to abide by and perform such orders and decrees as the court may deem proper.

(c) That said defendant, Saranac Automatic Machine Corporation, be required to account to plaintiffs for the profits realized by it and the damages to plaintiffs in the premises; and that this cause be referred to a Master to take an accounting of said profits and damages.

(d) That said defendant, Saranac Automatic Machine Corporation, and its agents, servants, workmen and all persons in privity with them, and each of them, be per-

petually enjoined and restrained, by decree and injunction of this court, from directly or indirectly infringing plaintiffs' said patents Nos. 1,128,144, 1,128,145, and 1,128,252, or any of them.

(e) That said defendant be decreed to pay the costs and disbursements of this suit to be taxed.

(f) And that plaintiffs have such other and further relief as to the court may seen meet.

Wirebounds Patents Company, 4-One Box Machine Makers, by L. A. Janney, of counsel. Edward S. White, Emery, Booth, Janney & Varney, of Counsel. Knappen, Uhl & Bryant, Plaintiffs' Solicitors.

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[fol. 40] IN UNITED STATES DISTRICT COURT

ANSWER TO SECOND SUPPLEMENTAL BILL.—Filed April 24, 1926

To the Honorable the Judges of the District Court of the United States for the Western District of Michigan, Southern Division:

The answer of Saranac Automatic Machine Corporation, the above named defendant, to the second supplemental bill of complaint exhibited against it by the above named plaintiffs.

This defendant, now and at all times hereafter saving and reserving to itself all and all manner of benefits and advantages of exception which may be had or taken to the many errors, uncertainties, imperfections and insufficiencies in the plaintiffs' said second supplemental bill of complaint contained, for answer thereto, or unto so much or such parts thereof as this defendant is advised that it is material or necessary for it to make answer unto, answering, says:

1. This defendant admits that, subsequent to the filing of the original bill of complaint, some of defendant's licensees have been manufacturing eight-cleated blanks which are, so defendant says, on information and belief,

substantially the same as the four-cleated blanks complained of in the original bill of complaint, and the same as those complained of in the Gibbons suit, except that in the manufacture of these eight-cleated blanks four cleated sections are employed for each blank; says, on information and belief, that these eight-cleated blanks are made on the same machines upon which the four-cleated blanks are made, without any material change in the work feeding and guiding means, by simply increasing the number of cleat pushers for each blank, each eight cleated blank being made by using eight cleat pushers for each blank, and by the same cleat-pusher method employed in the making of the four-cleated blanks complained of, except that in these machines having eight cleat pushers for each blank the pushers do not engage the ends of the cleats, but instead engage the shoulders of the cleats; says that it is not a user of its wirebound box blank machines, and is not a manufacturer of wire-bound boxes of any kind or description, and has manufactured no such boxes; says that it has no licensees or users of its machines or methods anywhere within the juris-
[fol. 41] diction of this court, or anywhere in the State of Michigan; says that the only instances of the use of the said cleat-pusher method, for the manufacture of the said eight-cleated blanks complained of in the second supplemental bill of complaint, so far as it can discover, on information and belief, are outside of the State of Michigan, and beyond the jurisdiction of this court; says that all of the defenses set up in the answer to the original bill of complaint are applicable to the supplemental bill of complaint; wherefore, defendant here and now repeats the statements and allegations of said answer to said original bill of complaint, as against the averments of the second supplemental bill of complaint, and adopts them as its answer thereto.

2. Further answering, this defendant says that the language of the charge of infringement, by the manufacture of eight-cleated blanks by some of defendant's licenses, by using eight loose cleats for each blank, preliminary to the wiring thereof together, is misleading, inasmuch as such eight-cleated blanks are now public property, plaintiffs' reissue patent No. 12,725 having expired, and says that because of the expiration of this patent defendant's licenses are

now at liberty to make eight-cleated blanks by the method shown and described in this expired patent (or by defendant's own patented methods), which method was merely the obvious and necessary and only known method at the time this patent was granted of making the blank shown and described in this expired patent, and says that this expired reissue patent is a complete defense to the so-called method patent in suit.

3. Further answering, defendant shows that subsequent to the filing of its original answer, and its answer to the first supplemental bill of complaint, letters patent were issued to it as assignee of Edward Craig, to-wit: patent No. 1,565,909, granted December 15, 1925, for "Machinery and Method for Making Box Blanks," a copy of which is hereto attached [see Defendant's Exhibit No. 19, Defendant's Record]; and defendant denies that the machines and methods complained of in the second supplemental bill of complaint are like or in any way similar to the machines and methods of the patents in suit, and avers, to the contrary, that its said machines and methods are like and follow the teachings of its own letters patent hereinbefore specified.

4. Further answering, defendant denies that plaintiffs are entitled to any relief whatsoever, or to any part of the [fol. 42] relief in said supplemental bill of complaint demanded, and, except for the matters admitted to be true in paragraph 1 of this answer, denies all of the allegations of Section VI of the supplemental bill of complaint; denies that any of its machines or methods complained of are an infringement of any of the patents in suit, and denies that any of its machines have been manufactured and delivered to its licensees, or to others, with the intent that said machines were to be used to practice the method of patent No. 1,128,252, and denies that the method of this patent has ever been practiced on any of its machines at any time or at any place; and denies the charges and allegations of Section VII and Section VIII of the supplemental bill of complaint.

5. Further answering defendant denies all and all manner of unlawful acts whatsoever, whereof it is in any wise by the said supplemental bill of complaint charged; all of

which matters and things this defendant is ready and willing to prove as this Honorable Court shall direct, and prays to be hence dismissed with its reasonable costs and charges in this behalf most wrongfully sustained.

Saranac Automatic Machine Corporation, by Rice & Rice, Solicitors for Defendant. Dwight B. Cheever, Howard M. Cox, of Counsel for Defendant.

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[fol. 43] In United States District Court

## Narrative Statement of Evidence Pursuant to Equity Rule No. 75

Proceedings at the First Hearing under the Original and First Supplemental Bills of Complaint and the Answers Thereto

Caption

Be it Remembered that on the trial of the above-entitled cause, in the District Court of the United States for the Western District of Michigan, Southern Division, at the June 1925 Term thereof, at Grand Rapids, Michigan, before the Honorable Fred M. Raymond, a Judge of said Court, the following proceedings were had:

Trial commenced September 21, 1925.

Appearances of Counsel

Laurence A. Janney, Esq., Plaintiffs' Counsel; Edward S. White, Esq., Howard S. Laughlin, Emery, Booth, Janney & Varney, of Counsel; Knappen, Uhl & Bryant, Plaintiffs' Solicitors.

Dwight B. Cheever, Esq., Howard M. Cox, Esq., for Defendant; Rice & Rice, Solicitors for Defendant.

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It was explained that the testimony was all presented in deposition form, whereupon counsel for plaintiffs made formal offer of Plaintiffs' Record, Volumes I and II, containing depositions on behalf of plaintiffs, and also made

formal offer of the exhibits referred to in the depositions. These were received in evidence without objection.

[fol. 44] PRIMA FACIE EVIDENCE ON BEHALF OF PLAINTIFFS

Session for the taking of Plaintiffs' Prima Facie Proofs beginning May 29, 1925.

Present: Laurence A. Janney, of counsel for plaintiffs.

By Mr. Janney: Mr. Howard M. Cox, of counsel for defendant, has just notified me by telephone that he will defer attendance at the taking of these depositions until further notice; and that in the meantime he requests that I proceed with the depositions as though defendant were here represented by counsel.

Plaintiffs' counsel offers in evidence the following stipulation, duly signed by counsel for the respective parties on May 29, 1925, to-wit:

"STIPULATION RE TESTIMONY, ETC.—Filed May 29, 1925

"Subject to the approval of the Court, counsel for the respective parties hereby stipulate and agree as follows:

"1. That most, if not all, of the witnesses who will be called in this cause reside more than 100 miles from the City of Grand Rapids and therefore their testimony will be taken by deposition under the Statute. Therefore for the sake of uniformity it is agreed that all evidence to be taken by either parties shall be taken by deposition.

"2. Throughout the proceedings in this cause, printed or photographic copies of United States and foreign patents and publications shall be admissible in lieu of and with the effect of the originals or certified copies, subject to correction if error appear.

"3. Depositions of experts on direct examination shall be presented in affidavit form and each expert shall be submitted for cross-examination, if the opposing party so demand, within the period set for the taking of that branch of the testimony in which such affidavit is offered, but the opposing party shall in any event be accorded ten days for examination of the expert's deposition before making the cross-examination.

"4. The citizenship and residence of the parties is as set forth in the bill of complaint.

"5. The plaintiffs have respectively the titles and interests in, to and under the patents in suit as set forth in the bill of complaint.

[fol. 45] "6. The defendant, Saranac Automatic Machine Corporation, while denying that the fact is material, relevant or competent, admits that it has leased machines and licensed the use thereof, for the manufacture of wirebound box blanks, to the following:

"H. R. Gibbons Box Co., Chicago, Illinois.

"Maxwell Brothers (Inc.), Chicago, Illinois.

"Marion Handle & Box Co., Marion, Indiana.

"Silvers Box Corp., Dallas, Texas.

"White Box Factory, Inc., Columbia, Mississippi.

"Gondert & Lienesch, Dayton, Ohio.

"The Conneaut Can Co., Conneaut, Ohio.

"Wm. H. Champlin, Rochester, N. H.

"St. Louis Box Factory, St. Louis, Missouri.

"Northwestern Box Co. (Not Inc.), 115 Emerson Ave. N., Minneapolis, Minn.

"Continental Wire Bound Box Co., Houston, Texas.

"7. Either party may offer in evidence as a part of its proofs, during the times set for the presentation of its evidence, all or any part or parts of the evidence presented in the following records, namely:

"(a) Wirebounds Patents Co. and 4-One Box Machine Makers v. H. R. Gibbons Box Company, in Equity No. 2689, in the Northern District of Illinois Eastern Division.

"(b) National Box Co. v. Wirebounds Patents Co. and Wirebounds Corporation, Appeal Docket No. 2422, in the U. S. Circuit Court of Appeals for the 7th Circuit.

"(c) William P. Healy, assignee v. Richard G. Inwood and Perry C. Lavenberg, Patent Appeal Docket No. 614, October term, A. D. 1919, of the Court of Appeals of the District of Columbia, being the appeal in Interference No. 27,904 in which were involved patents Nos. 1,128,144 and 1,128,145.

"(d) Wirebounds Patents Co. and Wirebounds Corporation v. Chicago Mill & Lumber Co., in Equity No. 174, in

the District Court of the United States for the Northern District of Illinois, Eastern Division.

"(c) National Wirebound Box Company et als. v. William P. Healy, No. 1717, in the United States Circuit Court of Appeals for the 7th Circuit, October term, A. D. 1909.

"Any testimony (including exhibits) contained in said records, when offered in evidence in this cause, shall be re- [fol. 46] ceived in evidence with full force and effect as though the testimony had been adduced in this cause by the party offering the same, subject only to objections to materiality and relevancy which the objecting party may make and argue at any stage of the litigation.

"8. The depositions and exhibits introduced in taking such depositions may remain in the custody of counsel for the party offering the same until the final hearing, subject to the right of the opposing party to inspect such exhibits at reasonable times and to use such exhibits in taking its own testimony.

"9. Each party shall furnish to the other party, without charge, two copies of each deposition taken on its behalf, together with two copies of all paper exhibits except patents and printed publications of which duplicates are readily procurable.

"Each party in printing its record shall have extra copies printed and shall furnish to the other party in case of need a sufficient number for the purposes of appeal, the allocation of the cost of printing to await the award of costs at the final outcome of the suit.

"L. A. Janney, Counsel for Plaintiffs. Cheever & Cox, of Counsel for Defendant.

"Dated at Chicago, Illinois, this 19th day of May, 1925."

Plaintiffs' counsel offers in evidence the patents in suit as follows:

Patent No. 1,128,144, dated February 9, 1915, to Inwood and Lavenberg, to be marked Plaintiffs' Exhibit No. 1:

Patent No. 1,128,145, dated February 9, 1915, to Inwood and Lavenberg, to be marked Plaintiffs' Exhibit No. 2; and

Patent No. 1,128,252, dated February 9, 1915, to Inwood and Lavenberg, to be marked Plaintiffs' Exhibit No. 3.

It is here noted that the foregoing stipulation includes the following:

"4. The citizenship and residence of the parties is as set forth in the bill of complaint.

"5. The plaintiffs have respectively the titles and interests in, to and under the patents in suit as set forth in the bill of complaint."

[fol. 47] Plaintiffs' counsel gives notice that the following claims of the patent in suit will be relied upon:

In the workholder patent, No. 1,128,144, claims 6, 11, 13, 14, 26, 34, 37, 38, 39 and 40.

In the blank machine patent, No. 1,128,145, claims 23, 25, 36, 38, 46, 56, 57, 58, 61, 62, 63, 64, 65 and 66.

In the method patent, No. 1,128,252, claims 2, 4, 5, 6, 7, 8, 9, 10, 12, 13, 15 and 17.

It is agreed between counsel that Robert H. Kammler, a notary public in and for Cook County, Illinois, may act as special examiner, under the Statute, by whom plaintiffs' witnesses shall be sworn and before whom their depositions shall be taken.

Roscoe Steele, a witness for plaintiffs, being first duly sworn, testified as follows:

Direct examination:

My name is Roscoe Steele. I am 50 years old. I reside at Rockaway, N. J., and my occupation is service man for the 4-One Box Machine Makers, one of the plaintiffs in this suit. As service man for this plaintiff my duties are the installation of machinery and methods of manufacturing 4-One boxes, which are foldable boxes consisting of four sections tied together by binding wire. Since the spring of 1906 until now I have been continuously engaged in the business of installing machines and methods for making wirebound boxes.

The installation of a wirebound box blank machine consists of:

After the machine in a knockdown condition has been boxed and crated and shipped to the point where the installation is to take place, it is my duty to superintend the

assembling of each machine part and put these machines under belts, and supervise the cutting of cleat and sheet material and feeding this material through the blank machines to demonstrate to the persons who expect to operate this machine the proper methods of handling same. When the wirebound box blank machines are delivered to the point at which the installation is to take place they are knocked down and packed in boxes and crates. The main head of the machine is crated. The workholders are boxed in one box and the channels and the sprocket wheels in another box; the stitcher parts in a separate box. In all I would say it takes approximately eight boxes and five [fol. 48] crates to carry a box-blank machine. To the extent of approximately 60 per cent., I have done the assembling of these knocked-down machines with my own hands. As to the extent to which I have participated in the general organization of box making operations for the manufacture of wirebound boxes on the box-blank machines referred to, I will say that in nearly every instance where a blank machine had been installed by me I operated that machine to the extent of several thousand boxes in order to insure myself that the machine was in perfect working condition. At one time I was manager in charge of a plant manufacturing 4 One boxes for forty-five weeks. At another plant I remember that I had full charge of the wirebound box plant for six weeks. In the plant in which I was manager for forty-five weeks the rate of production of wirebound boxes under my supervision was a great portion of the time, ten thousand boxes per day, a day consisting of ten hours. Part of the time there were five wirebound box-blank machines in operation under my supervision, and part of the time six. This was the Van Camp Packing Company in Indianapolis, and the boxes made under my supervision were used for canned food boxes. The boxes were different sized. Some of them carried 24 two-pound cans, some of them carried 24 three-pound cans and others 48 one-pound cans and others 6 ten-pound cans.

I first saw in operation a blank machine for making the four sections of wirebound box blanks in the early part of 1906, the last of January or the first of February. That was in South Bend, Indiana, in the shop of South Bend Healy Box Company. I will refer to this as the "South Bend machine." I saw that machine in operation in Janu-

ary or February, 1906, say three times. I happened to see the machine in operation those three times because my brother was operating the machine at that time and I called at South Bend to visit him. My home at that time was in North Manchester, Indiana, about eighty miles from South Bend. I saw that same South Bend machine in operation at a later time in 1906. I began to work for the National Wirebound Box Company later in the spring of 1906, I think in April or May. I saw that South Bend machine operate nearly every day for the first three months of my employment in the National Wirebound Box Company. I was working on the assembly floor in the machine shop of the National Wirebound Box Company, located in South Bend, Ind, which machine shop was on the same lot with the box plant of the South Bend Healy Box Company. As to how far my work bench was from the South [fol. 49] Bend machine, they were in different buildings, and approximately 300 feet apart. Beginning in April or May, 1906, and the ensuing three months, I had occasion to go to the South Bend Healy box plant, as I was well acquainted with the foreman at that time of the Healy box plant and had been acquainted with him since our school days. And the business of assembling stitchers in machines for the National Wirebound Box Company caused me to get information from the stitchers that were used on the South Bend machine at that time, and I carefully watched the machine in operation many, many times.

In the shop of the National Wirebound Box Company I was assembling box-blank machines. I had previously had no experience in machine shop work on wirebound box-blank machines.

Daring the three months beginning in April or May, 1906, I saw the product of the South Bend machine, which was wirebound box-blanks, and consisted of four sections, two cleats fastened to each section by staples straddled over binding wire and driven through sheets and into cleats. I saw blanks of the kind I have just described made by the actual operation of the South Bend machine about April or May, 1906.

The cleat ends in those boxes were step mitered. Describing in general terms the South Bend machine, it was a stationary head type with a table and a workholder.

This workholder passed on top of the table and under the stitcher heads. The stitcher heads formed and drove the staples. The workholder consisted of two parallel channels rigid in cross-section, and spacer blocks. The spacer blocks were to position the cleats in their relation to the sheets and to one another. The cleats were positioned on the workholder in the channels that I have described. There were five spacer blocks in each channel; ten in all. One of these workholders received eight cleats, four in each channel. The side material for the box-blanks used in these workholders were four separate sections of veneer.

Describing how the ten spacer blocks were located with reference to the eight cleats: There were five pairs of spacer blocks. The first pair was in front of the first pair of cleats. The second pair of spaced blocks was in the rear of the first pair of cleats and in front of the second pair of cleats. The third pair of spacer blocks was in the rear of the second pair of cleats and in front of the third pair of cleats. The fourth pair of spacer blocks were in the rear of the third pair of cleats and in front of the fourth [fol. 50] pair of cleats. The fifth pair of spacer blocks were in the rear of the fourth pair of cleats. The sheets were placed on top of the cleats and the spacer blocks were at each end of each sheet.

In these blanks that I saw produced on the South Bend machine in April or May, 1906, the sheets of the first and third sections were one-half inch wider than the cleats of the first and third sections; and the sheets of the second and fourth sections were of a width equal to the length of the cleat plus twice the thickness of the sheets used. The effect of making these veneer side sheets of greater width than the lengths of their respective cleats was that the sheets of the top and bottom sections would overlap the sheets of the side sections when the blank was folded into box form.

I can read mechanical drawings.

Q. 61. Please look at the drawings of the Inwood and Lavenberg reissued patent No. 12,725 and note particularly Fig. 1 of that patent. How does that compare with the box blanks which you saw manufactured on the South Bend machine in April or May, 1906?

A. Identical.

By Mr. Janney: The patent just referred to by the witness, reissue No. 12,725, dated November 26, 1907, to Inwood and Lavenberg and entitled "Box" is offered in evidence as Plaintiffs Exhibit No. 4.

Q. 62. Please refer to Figs. 3 and 4 of this reissue patent, No. 12,725. How do the cleat and sheet relationships there shown compare with those that you observed in the box-blanks which you saw made on the South Bend machine in April or May, 1906?

A. Just the same.

In addition to the channels and spacer blocks used to hold the cleats in place on the South Bend machine as I observed it in April or May, 1906, there were springs fastened to the inside wall of the channels. Those springs forced the cleat in an outward position against the outside wall of the channel. On each workholder in the South Bend machine there was at least one spring for each cleat.

On the workholders for the South Bend machine as I saw it in April or May, 1906, there was a bar the full length of this workholder, which was known as a pressure bar, for holding the veneer side sheets in position. That pressure bar was located on the top of the sheets and lengthwise across the sheet sections to hold them in place. That pressure bar was fastened to each end of the workholder and moved off the workholder in a rotary movement. [fol. 51] On the South Bend machine as I saw it in 1906, to hold the side sheets against sidewise movement, there were lugs on the spacer blocks that held the ends of these sheets in a plane with the sides of the cleats and also held the sheets from any cross-wise movement.

Looking at the workholder patent in suit No. 1,128,144 and particularly at Fig. 1 thereof, the structure there shown is just the same as the workholder which I saw on the South Bend machine in 1906. Referring to the reference numerals in that Fig. 1, the thing marked 14 is a pressure bar. The two things marked 12 are connecting rods with one end fastened to the workholder and the other to the pressure bar. Those connecting rods 12 were mounted on the workholder with a bolt or cap screw. It was a pivotal connection. The thing marked 13 is the pivotal connection. Explaining just how that pressure bar operated: after the cleats and sheets had been placed in this work-

holder, pressure bar was brought over in a rotary movement and pressed down on these sheets to hold them in place. The parts marked 1 are the inside walls of the channel. The part marked 4 is the outside wall of the channel. The cleats were located between the inside walls 1 and the outside walls 4. The blocks 6 in this drawing were spacer blocks. The things marked 15 were springs. They are the springs that I have already referred to. Looking at Fig. 7 of this workholder patent in suit No. 1,128,144, the arrangement of spring and cleat is just the same as I observed it on the South Bend machine in 1906. In this Fig. 7 the part marked A is the cleat. The part marked 15 is the spring. In the position in which it is shown in that Fig. 7, the spring is under compression. In that Fig. 7 the part of the left marked 7 is a spacer block. The part at the right marked 7 is a spacer block. The part at the top of the figure marked 1 is the inside wall of the channel. The part at the bottom of the figure marked 4 is the outside wall of the channel.

In the actual practice as I observed it on the South Bend machine in 1906, the distance between the two adjacent spacer blocks with reference to the length of the cleat that was to lie between them was the length of the cleat plus a clearance of approximately 1 32 inch. That clearance was allowed so that the cleats could be placed between these spacer blocks conveniently and also so that the blank could be taken from the workholder easily. The cleats [fol. 52] were at least somewhat loose between their spacer blocks. Looking again at this Fig. 7 of the workholder patent in suit, No. 1,128,144 and comparing the relationship of the two spacer blocks 7-7 and the cleat ends as there shown with what I observed upon the South Bend machine in 1906, for practical purposes the cleats were looser between the blocks than this drawing shows. Referring again to that Fig. 7 of the patent in suit, No. 1,128,144, if the spacer block 7 at the right of the Fig. 1 were omitted altogether, that would not affect the positioning of the cleat in the regular operation of the South Bend machine as I observed it in 1906. In the absence of the spacer block 7 at the right of this figure, the spring on the inside wall of the channel would prevent the cleat from being displaced from its proper position with its rear end abutting against the spacer block 7 at the left of the figure. The spring

would produce that result by friction, pressing the cleat against the outside wall of the channel. That spring is shown in this Fig. 7 and is indicated by the numeral 15. Referring again to Fig. 1 of the patent in suit, No. 1,128,144, if the rear half of each of the second, third and fourth spacer blocks were cut away entirely, that would not affect the correct positioning of the cleats in the workholder. The cleats would be placed in the channels with the rear end of the cleats against the front face of the spacer blocks and between the spring and the outer walls of the channel. Under those circumstances, and still assuming that the rear halves of the intermediate spacer blocks were cut away, and if the cleats were correctly positioned at their rear ends as I have described, that would not affect the maintenance of correct position of the cleats during the regular operation of the South Bend machine as I saw it in 1906. It would operate perfectly successfully with the rear of the spacer blocks cut away and the rear end of the cleats positioned against the faces of the spacer blocks that were not cut away. In that operation the springs on the inner walls of the channels would serve to hold the cleats in their correct positions. In this Fig. 1 the springs are numbered 15.

Referring to the blocks indicated at the extreme upper right-hand end of this Fig. 1 of patent No. 1,128,144, if they were omitted altogether, if the first pair of cleats were placed in their right position, they would stay there through the operation of that blank and the omission of those blocks would make no difference at all in the operation of the South Bend machine as I saw it in 1906.

[fol. 53] Referring again to that Fig. 1 of patent No. 1,128,144, the things marked 16 are a part of the spacer blocks. They are to hold the ends of the sheets in line with the outside walls of the cleats and also to hold the sheets from any cross-wise movement. On this workholder on the South Bend machine as I saw it in 1906, to prevent the movement of the veneer sheets in a direction lengthwise of the workholder, there was the connecting rods of the pressure bar. That is shown and numbered 12 in this Fig. 1. In this South Bend workholder as I saw it in 1906, there was nothing but the pressure bar that held the second and third sheets down and the edges abutting with the first and fourth sheets, to prevent them from moving lengthwise of

the holder. As I have described the various parts illustrated in Fig. 1 of this patent 1,128,144, those parts and my description thereof are just the same as the corresponding parts of the South Bend workholder as I observed it in operation in 1906. In our wirebound box-blank machines as they are used today, we use fins on the spacer blocks to position the intermediate veneer sheets. On the machines of today the fins on the rear blocks are essential, but the rest of the fins on the blocks are for convenience. I have seen the operation of our current machines without fins. On any of our machines that you see in operation there will be one or more fins broken off of each blank set up. The blanks made are A 1. It does not affect the operation of the machine at all. I will say I have seen as much as half of those sheet positioning fins lacking for a single blank on our current machines. Under those circumstances the lack of those fins did not affect the operation of the machine. The lack of those fins did not have any effect upon the quality of the product. The boxes were made commercially. As I have observed operators of these currently used wirebound box blank machines, they never stop the operation to repair the fins.

On the South Bend machine as I saw it in 1906, the workholder was propelled through the machine with a rack and gear. It was operated by power. The rack was on the outer side of the workholder. The gear was under the table and protruded through the top of the table, or the teeth protruded through the top of the table. The gear that protruded through the top of the machine table was a long roller that extended the full width of the table with gear teeth on it. This toothed roller was driven with power, with pawl and ratchet, with a step by step motion.

[fol. 54] Q. 131. Please look at the patent in suit, No. 1,128,145, particularly at Fig. 1 thereof. How does the apparatus there shown compare with the South Bend machine which you saw in operation in 1906?

A. Just the same.

In that Fig. 1 the part marked B is the side sections of the box blank. Those side sections B are mounted on the workholder. The part marked 53 is the rack, which is mounted on the workholder. The thing marked 38 is the geared roller; the teeth of the rack meshed with the teeth of the roller. The parts at the left marked 36, 39, 40 and 41

are the pawl and ratchet feed. That pawl and ratchet mechanism drove the geared roller 38. The thing marked 44 is a hand lever to move the workholder forward by hand, if necessary. There was a lever on the South Bend machine as I observer it in 1906 corresponding to this hand lever 44. It was used to advance the workholder to a point under the stitcher head for the first staple in each blank to be driven. It was also to advance the finished blank, the one that had just been wired, to make the proper length wires on the end of the blank so this box could be properly closed. And it was also used whenever there was occasion for moving the workholder by hand independently of the power drive. The things marked 51 are spools for binding wire. From those spools the binding wires were placed that on the box-blank parts. The binding wires were not under tension. The parts marked 8 are stitchers. They formed and drove staples into the box parts. As the parts are shown in this Fig. 1 of patent No. 1,128,145 and as I have described them with reference to the drawing, those parts and my description of them compare just the same with the South Bend machine as I saw it in 1906.

Q. 151. I call your attention to the fact that this Fig 1 of patent 1,128,145 does not show any guides on the machine table for guiding the workholder through the machine. State whether or not the South Bend machine as you saw it in 1906 employed guides for the workholder.

A. It did.

The guides were two parallel guides that were fore and aft the stitcher heads, fastened on top of the machine table, the same distance apart as the outside walls of the workholder. Those guides assisted the operator in keeping his box parts in line with his stitchers. I never to my knowledge saw the South Bend machine operated without guides. I think you could have operated that South Bend machine with the workholder I have described and without guides [fol. 55] for the workholder. The guides probably assist the operator in his operation to keep his workholder in perfect line with his stitchers, but there is no reason why the man at the rear of that machine cannot feed that workholder directly into the stitchers as long as it is operated by a rack and gear. If the South Bend machine were operated without guides, there would not be any effect upon the work-

holder and the box parts of the back pull of the binding wires, because there is no tension on the binding wires.

Q. 159. If no guides were used on the South Bend machine as you saw it operated in 1906, what might tend to throw the rigid former out of position?

A. If a binding wire would get caught in the spool on one side of this workholder it might have a tendency to pull the workholder sideways.

Q. 160. How far sideways could the workholder be pulled while its rack was in engagement with the gear teeth on the toothed roller?

A. Approximately whatever slack or clearance there was in the gear teeth.

Q. 161. What would that normally be, approximately?

A. Not more than 1/32nd of an inch.

Having observed, as I have said, the operation of the South Bend machine practically every day for about three months beginning about April or May of 1906, I can say, as to the mechanical practicability of the operation of that machine as I observed it, they operated it every day, practically every day. The product was good boxes.

During the latter part of the year 1906 I was still in the employ of the National Wirebound Box Company. I was servicing and installing machines at Chicago, Battle Creek and Indianapolis. From the fall of 1906 onward I was away from South Bend the greater portion of the time, but I had opportunities thereafter to observe the operation of that machine. On my trips to South Bend and the plant of the National Wirebound Box Company I would step across to the Healy Box Company and watch its operation. Those circumstances continued for several years and until that particular plant was discontinued, but I don't remember exactly when that took place. During these later observations of the South Bend machine by me the construction and operation of the machine was just the same as I observed it in 1906 as I have already described it.

Describing briefly different types of wirebound box-blank machines that I have personally installed since my observations of the South Bend machine in 1906, I installed what is known as the traveling head machines, and also sta- [fol. 56] tionary head machines. When I refer to the head of one of these machines—I mean by the head the staple

forming and driving mechanism as distinguished from the workholding apparatus. There was a workholding apparatus on the traveling head machines. In the traveling head machines the workholder was stationary while the staples were being driven. The staple forming and driving mechanism moved in a step-by-step motion in relation to the workholder. That is to say, during the stapling operation the work remained stationary and the stapling mechanism traveled along the length of the blank driving the staples in succession. And during the actual driving of a staple the stapling mechanism was stationary in relation to the work.

The workholder of the traveling head machine consisted of two chains running fore and aft of the machine. These chains were made of links 12 inches long whose cross section was channel shaped. The chains were mounted in the machine on sprocket wheels fore and aft. The channel shape of the chain links was in order to place the cleats lengthwise in these channels. In addition to the channel shape of the links these workholders had spacer blocks for positioning cleats. The side sheets for the blanks were positioned with reference to these chains and cleats by fins on the spacer blocks in a predetermined relation to the ends of the cleats. Describing the spacer blocks that were used with the chains on the traveling head machines, the spacer block was a metal block fastened to the inner wall of the chain with a fin member to separate the sheet sections and a positioning part to position the cleat members, relative to the sheet members and to each other. Five of these spacer blocks were used for each box blank on the work carrying chains of the traveling head machine—ten blocks in all for each blank. The arrangement of those ten blocks on the chains of the traveling head machine was just the same as the arrangement of the ten spacer blocks of the workholder of the South Bend machine that I have described. The functions of these spacer blocks on the chains of the traveling head machines were just the same as the functions of the spacer blocks on the workholder of the South Bend machine as I observed it in 1906. As to the purpose and effect of using the workholder chains on the traveling head machine on sprocket wheels, as I have said, those were endless chains and they were mounted on the sprocket

wheels so that in the reverse movement of the traveling head you would deliver a finished blank at the rear end of the machine and put the second blank in position to be [fol. 57] stapled as you again started the stitcher head forward. When the traveling head was operating to staple a blank the workholding chains were stationary. When the traveling head had finished wiring a blank, the traveling head would reverse and be carried to its original position. During that reverse movement of the traveling head the work carrying chains were moving forward in the same direction the head was moving.

I can and do produce a photograph of one of the traveling head machines.

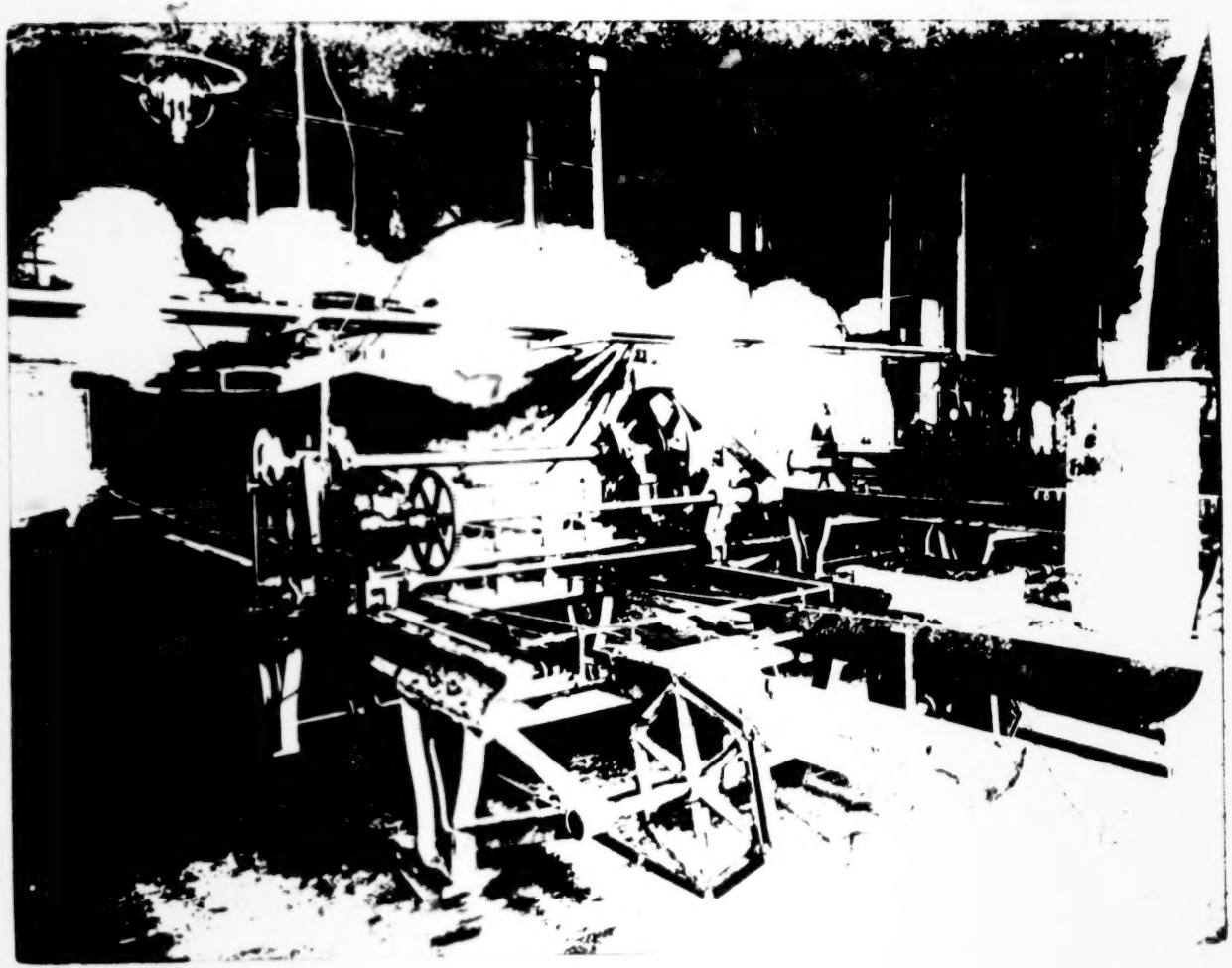
Mr. Janney: The photograph produced by the witness is offered in evidence as Plaintiffs' Exhibit No. 5.

(Here follows Plaintiffs' Exhibit No. 5, side folio 57½.)

In general terms, this part which has been marked A is the carriage for the staple forming and driving mechanism. The part marked B is the track on which this carriage is moved. These parts marked C are the rollers on the carriage that travel on the track B. These parts marked D are stitchers; that is the staple forming and driving units. These things marked E are the workholder chains.

Referring to this photograph, Plaintiffs' Exhibit 5, this carriage A was arranged to be moved back and forth along the tracks B intermittently in a forward direction and continuously in the reverse direction. It was moved by power. And in the forward direction, the intermittent movement, a staple was driven at each period of rest of the carriage A. And when the staples had been driven for as many blanks as were set up on the workholding chains, the movement of the carriage A was then reversed and it was then returned to its original position.

I have refered to a stationary head machine. The first of these stationary head machines as I saw it was this same machine with the head fastened down to the tracks by bolts. When I say "this same machine" I mean the traveling head machine shown in Plaintiffs' Exhibit 5. When I referred to the head being fastened down to the tracks I meant that the carriage A in the Plaintiffs' Exhibit 5 was fastened down to the tracks B, and the effect of that was to



Plaintiffs' Exhibit No. 5, Photograph of Traveling Head Machine.

prevent the travel of the carriage A lengthwise of the machine. No change was made in the construction of the chains and spacer blocks when we converted the traveling head machine into a stationary head machine. As to the change made in the operation of the workholding chains of the traveling head machine when we converted it into the stationary head machine, the workholder was fed forward by step-by-step motion. That step-by-step motion [fol. 58] was related to the staple driving operation by a pawl and ratchet. The staples were driven at the time the chains were stationary.

I first installed one of the earliest traveling head machines in 1906—in the latter part of the year. I installed altogether approximately thirty-five traveling head machines. I cannot give the exact date we converted the traveling head machines into the stationary head machines, as I have described, but it was some time in 1909.

As to the difference between the workholder on the South Bend machine as I observed it in 1906, on the one hand, and the workholders on the later traveling head and stationary head machines, the functions of the workholder were just the same. For instance, if the channels of the workholder on the South Bend machine had been made in 12 inch pieces and linked together you would have approximately the same chains that we are using on the stationary head today. From the time, about 1909, when we first converted the traveling head machine into a stationary head machine, no changes have been made in the workholding chains and spacer blocks, and their relationships in the machines which I have been installing, with the exception that some parts have been strengthened.

I testified that I first installed one of the traveling head machines in the latter part of 1906, and that altogether I installed about thirty-five of those machines. I installed those thirty-five traveling head machines over a period of approximately three years. And the traveling head machines continued in regular commercial operation from the time I began in 1906 until approximately 1912.

I testified that we converted the traveling head machine into the stationary head machine for the first time about 1909. Thereafter all the traveling head machines that were in operation were converted into the stationary head

machines, as I recall it, which lasted over a period of approximately three years from the time the first one was tied down until the job was finished. I personally attended to the converting of about ten of these machines. All the other outstanding machines were converted, but some by other men from our shops. Besides the ten traveling head machines which I myself converted into stationary head machines, I saw all of the other machines that had been converted and observed the operation. As to all of the traveling head machines which I observed after they had been converted to stationary head machines, the construc-
[fol. 59] tion of the workholding chains and spacer blocks had not been changed at all from the condition they were in when the machines were still traveling head machines. The functions of the workholding chains and spacer blocks were not modified or changed in any way on any of those machines when they were converted from the traveling head type to the stationary head type.

Referring now to the traveling head machines before they were converted, those machines were installed and operated in at least ten different plants according to my personal observation. They were successful in commercial operation. Some of the plants that I know of operated 16 hours every day for several years.

Returning to the South Bend machine that I observed in 1906 as I have described, the principal function and effect of the workholder and spacer blocks used on that machine [illegible] observation was to place eight cleats and four sheets, and each sheet was so positioned relative to each other that when these four sections were wired together they would fold in box form in a predetermined relation. Since I observed the South Bend machine in 1906, I have observed no changes in the principle, function and effect of the workholder and spacer blocks in the later types of blank machines put out by these plaintiffs up to and including the machines now currently put out.

When the functions and effect of the workholder and spacer blocks, as I have just described them, have been performed on the blank machine, and the four box sections have been wired together, the blank is thereafter very easily folded into finished box form. Anyone can fold this blank, as it is almost fool proof. I mean that the sections of this

FIG 1

FIG 1a

FIG 2

FIG 2a

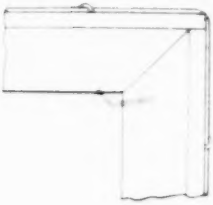


FIG 3

FIG 3a

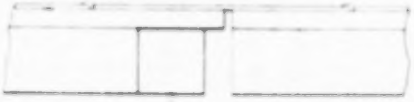


FIG 3b

FIG 4

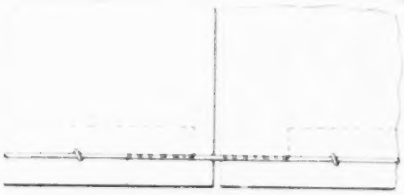


FIG 4a

FIG 4b

Plaintiffs' Exhibit No. 6. Drawing Illustrating Tongue and Groove, Shiplap and Straight Mitered Cleat Ends.

blank are so positioned relative to each and every other part of the blank that it is almost impossible to fold them wrong. The sort of labor generally employed in folding these box-blanks, made as I have just described, is ordinarily the very cheapest class of box labor, consisting of girls, women, boys and men. The range of wages, approximately, paid to the labor employed in folding these boxes differs in different localities, from 12½ cents to 30 cents an hour. I have in mind one plant that pays 10 cents an hour. At that plant colored women are being paid 10 cents an hour. I have many times witnessed the folding operation performed by these colored women. They are very successful in that work. They fold the boxes quickly in [fol. 60] proper form. As to how many of the blanks such as I have described can fairly experienced labor fold in an hour, that depends on the size of the box. Take, for instance, a No. 3 canned food box, which in size is 18 inches long, 12⅞ inches wide and 9½ inches deep, the experienced man or woman will fold 200 an hour. Two dozen No. 3 cans are contained in a box of the size I have just described. I can cite an instance of typical folding operation that I have witnessed. I remember very distinctly that at one place we had an operator operating an end stapler and his helper, who was a colored laborer, folded and ended on the end stapler, putting both ends in the box, at the rate of 300 an hour. The size of those boxes was 22 inches long, 11 inches wide and 10 inches high. That was the rate of production for days, day after day. When those boxes had been folded and ended, as I say, at the rate of 300 boxes per hour, they were ready to receive the contents.

I have testified that the wirebound box-blanks made on the South Bend machine as I observed it in 1906 had cleats with step-mitered ends. Other types of cleat ends have been used on wirebound box-blanks with which I have dealt since 1906, cleat ends known as tongue and groove, shiplap, and straight mitered. I can and do produce a drawing illustrating those four types of cleat end.

By Mr. Janney: The drawing produced by the witness is offered in evidence as Plaintiffs' Exhibit No. 6.

(Here follows Plaintiffs' Exhibit No. 6, side folio 60½.)

The step mitered cleat, the tongue and the groove cleat, and the straight mitered cleat are in use today by licensees of these plaintiffs. The step mitered cleat is continually being used; and as to the straight mitered cleats, I will say that the majority of our plants use the straight mitered cleats on a part of their product, and the use of the straight mitered cleats is increasing.

In the drawing Plaintiffs' Exhibit 6, the step mitered cleat is shown in Figs. 1 and 1 a. The straight mitered cleat is shown in Figs. 2 and 2 a. The tongue and groove cleat is shown in Figs. 3, 3 a and 3 b. The shiplap cleat is shown in Figs. 4, 4 a and 4 b.

I know of a reason why the straight mitered cleats are popular and growing in popularity with plaintiffs' licensees. In the hands of the relatively inexperienced labor of the customer and user of the box the blank with the straight mitered cleat is more easily folded because there [fol. 61] are no irregular parts of the cleat ends to be meshed with each other. I have heard the argument by a number of licensees that the straight mitered joint between the cleats makes a stronger box than the tongue and groove.

Q. 254. According to a stipulation already of record in this suit defendant has leased machines and licensed the use thereof for the manufacture of wirebound box blanks to the Conneaut Can Company of Conneaut, Ohio.

I visited the wirebound box plant of the Conneaut Can Company on May 4, 1925. At that time and place I saw a machine for making wirebound box blanks. I had means of identifying that wirebound box blank machine with a particular machine builder. I identified it with the Saranac Automatic Machine Corporation, by my familiarity with that type of machine and also by the name-plate on which was printed "The property of the Saranac Automatic Machine Corporation." I talked with Mr. Brewster at the Conneaut Can Company box plant. Mr. Brewster was the foreman in the wirebound box department of the Conneaut Can Company. He has charge of the men in the employ of the box department of the Conneaut Can Company. I had known Mr. Brewster before my visit of May 4, 1925, for several years. Explaining the circumstances of my getting into the wirebound box plant of the

Conneaut Can Company, on May 4 I arrived at the New York Central Depot in Conneaut and walked on the right-of-way about a mile to this box factory. I walked in the factory and met Mr. Brewster. I talked to Mr. Brewster about his methods of manufacturing wirebound boxes and he explained to me how this machine was operated and the methods of handling same. In the Conneaut Can Company's plant at the time of my visit on May 4, 1925, I was on all four sides of this wirebound box blank machine bearing the Saramac name plate and which I identified as the Saramac machine, close enough to rest my hand on the machine. When I examined the machine and the work-holding parts of it, Mr. Brewster was with me.

In referring to this machine which I saw at the Conneaut Can Company's plant on May 4, 1925, I will name the machine for convenience "the Conneaut machine." The work-holding elements of this Conneaut machine consisted of two guide-ways running parallel fore and aft of the stapling heads. These guide-ways in cross-section were channel shaped. Between these guide-ways were endless chains whose links were approximately four inches long and tied together with smaller links one and one-half inches [fol. 62] long. Placed on these endless chains were spacer blocks. There was a ratchet and pawl provision on the Conneaut machine for driving the chains. The ratchet and pawl gave to the chains a forward motion, step by step. There were ten spacer blocks for each box blank on the chains of the Conneaut machine. Some of these blocks were so designed to fasten on these chains with set screws and had an upstanding finger which is a fin, and some of these blocks in addition to this fin had cleat positioning fingers which extended into the guide-ways. By the guide-ways I refer to the channel shaped guides. I saw box parts assembled on this machine. They were four cleats. They were positioned with reference to the channel-shaped guides, two cleats in each channel-shaped guide lengthwise. The rear end of these cleats abutted against the cleat positioning fingers of these spacer blocks. Referring to the four successive sections of a blank, beginning at the advance end of the blank, as the first, second, third and fourth section, these four cleats positioned on the Conneaut machine were for the second and fourth sections. I did not see

this Conneaut machine in actual operation. I can and do produce a sample of a spacer block like those that I observed on the Conneaut machine. This block that I have just produced is exactly the same as the blocks I observed on the Conneaut machine that had the cleat positioning fingers, located on the right-hand chain of the machine, facing in the direction of movement of the chain. These spacer blocks were made right and left (hand) in pairs.

The block corresponding to the one that I produce, that is, the left block to go on the left hand chain, was exactly like the one I produced except that it did not have the elongated cam surface with the rounded ends shown in the block produced. The other blocks on the Conneaut machine were just like the block produced except that they were right and left hand and they omitted the projecting cleat positioning finger.

By Mr. Janney: Plaintiffs' counsel offers in evidence the sample block produced by the witness to be marked Plaintiffs' Exhibit No. 7.

Before seeing this Conneaut machine I had seen the Saranac Company's so-called alternate cleat blank machines. I had seen alternate cleated blanks that were the product of those alternate cleat machines. The set-up of chains and [fol. 63] spacer blocks on the Conneaut machine which I saw on May 4, 1925, was the same as the set-up for making the Saranac alternate cleated blank on the Saranac alternate cleat blank machines which I had seen.

Explaining how this set-up as I observed it on the Conneaut machine would be used in making the alternate cleated blank, I will begin at the advance end of the set up nearest to the stapling points and proceed from that point toward the other end of the blank. There was a pair of spacer blocks fastened on the chains. This pair of spacer blocks consisted of one right and one left. These blocks had projecting fins and no cleat positioning fingers. The second set of spacer blocks fastened on the chains were identical in construction with the first pair of spacer blocks.

The third pair of spacer blocks fastened on these chains were identical with the first and second pairs of spacer blocks with the exception that this third pair of spacer

blocks had cleat positioning fingers extending into the channel-shaped guide-ways.

The fourth set of spacer blocks were identical with the first and second pairs of spacer blocks.

The fifth pair of spacer blocks were identical with the third pair of spacer blocks and had the cleat positioning fingers extending into the channel-shaped guide-ways.

In making an alternate cleated box the sheet material of the first section, without any cleats, would be placed on the chain between the fins of the first and second pairs of spacer blocks. The second section consists of sheet material and two cleats, the cleats being placed in the guide ways, the rear ends of the cleats abutting against the front sides of the cleat positioning fingers of the third pair of spacer blocks.

The sheet material of the second section was placed on top of the cleats, between the fins of the second pair of spacer blocks and the third pair of spacer blocks.

The third section of this blank which consists of sheet material only was placed between the fins of the third set of spacer blocks and the fourth set of spacer blocks.

The fourth and last section of this blank consisted of sheet material and two cleats, which two cleats were placed in the guide ways and the rear ends of these cleats abutting against the front faces of the cleat positioning fingers of the fifth set of spacer blocks. The sheet of the fourth section was placed on these cleats and between the fins of the fourth pair of spacer blocks and the fifth pair of spacer blocks.

This set-up as I observed it on the Conneaut machine [fol. 64] and the method of assembling the parts for the alternate cleat blank which I have just described were just the same as the set-up and the method of making an alternate cleat blank as I have observed it elsewhere on the Saranac alternate cleat blank machines. I had some conversation with Mr. Brewster as to his method of employing on the Conneaut machine the set-up which I observed and have just described. In substance, Mr. Brewster told me that they were equipped on that machine to make the so-called alternate cleat blank and also to use the pre-cleated method in making blanks. Mr. Brewster explained

to me what he meant by the pre-cleated method of making blanks. He told me relative to the pre-cleated blank that he pre-stapled the cleats of the first and third sections to the sheets before placing these sections in the blank machine. In the alternate cleat blank method the first and third sections of the blank had no cleats attached to them on the blank machine, but the second and fourth sections had the cleats attached to them on the blank machine. So only two pairs of cleats on alternate sections were attached on the blank machine.

In the so-called pre-cleating method the first pair of cleats were separately attached to their side sheet and the third pair of cleats were separately attached to their side sheet before the first and third sections were assembled on the blank machine. And the second and fourth sections were assembled with the loose cleats and the loose side sheets on the blank machine together with the pre-cleated first and third sections. Hence, in the pre-cleating method eight cleats were assembled with the four side sheets on the blank machine.

I can and do produce a drawing showing the construction of the workholding elements of this Conneaut machine as I observed them on May 4, 1925, and showing the set up for the alternate cleated blank, as I have described it.

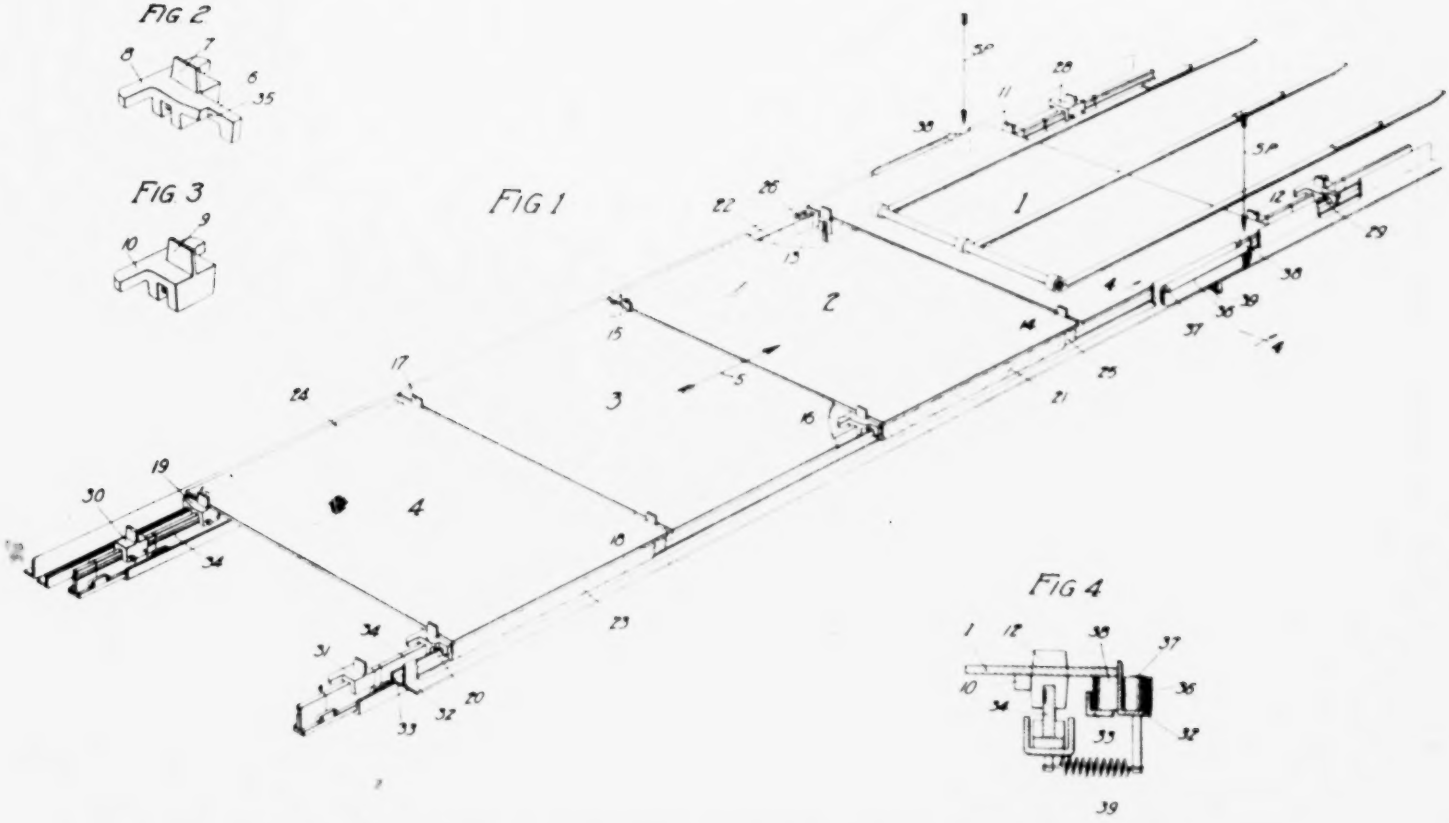
By Mr. Janney: The drawing just produced by the witness is marked for identification Plaintiffs' Exhibit No. 8, to be described as Steele's drawing of defendant's machine observed at Conneaut Can Company.

The draftsman prepared this drawing under my instructions. Nobody but myself determined what was to be shown on this drawing; except that Mr. Janney told me [fol. 65] that in getting up this drawing I need not show anything but the workholding parts.

This drawing marked Plaintiffs' Exhibit 8 for identification, accurately represents the guide ways, chains, spacer blocks and other parts illustrated, as I observed them all in the Conneaut machine on May 4, 1925.

By Mr. Janney: Plaintiffs' counsel offers in evidence the drawing marked Plaintiffs' Exhibit No. 8.

(Here follows Plaintiffs' Exhibit No. 8, side folio 65½.)




Plaintiffs' Exhibit No. 8, Drawing of Defendant's Machine at Conneaut Can Company.

On this drawing the arrows marked S U represent the stapling point. I mean by that that there arrows together represent the line on which the staples are driven. Those parts marked 1, 2, 3 and 4 are sections of side material. The arrow 5 represents the direction of travel of this workholder. The detached Fig. 2 at the left-hand side of the drawing of Plaintiffs' Exhibit 8 is a spacer block. On that spacer block in Fig. 2 the part marked 6 is the cleat positioning finger. The part marked 7 is sheet positioning fin. The part marked 8 is a cam. I think that cam operates the double stitcher.

This detached Fig. 3 on this drawing Plaintiffs' Exhibit 8 is one of the spacer blocks that does not carry the cleat positioning finger. The part marked 9 in this Fig. 3 is sheet positioning fin. The part marked 10 is a cam. These two blocks as shown in Figs. 2 and 3 are right-hand blocks. The corresponding left-hand blocks are identical with these shown in Figs. 2 and 3, only the cams are omitted on the left-hand blocks. The cams I have referred to are marked 8 and 10 in the respective Figs. 2 and 3. There were no cam surfaces on the left-hand blocks mounted on the left-hand chain of the machine.

Looking at Fig. 1, the perspective on this drawing, Plaintiffs' Exhibit 8, the construction of the first pair of spacer blocks marked 11 and 12 is identical with Fig. 3 with the exception that they are in pairs, one right and one left. The construction of the blocks marked 13 and 14 is the same as the blocks marked 11 and 12, or the same as in Fig. 3, rights and lefts. The blocks 15 and 16 are identical with Fig. 2 with the exception that they are rights and lefts. The construction of the fourth pair of blocks 17 and 18 is the same as in Fig. 3 with the exception that there is one right and one left. The fifth pair of blocks 19 and 20 are rights and lefts, and the same block is shown in Fig. 2 with the exception that there is one right and one left. The blocks 15 and 16 are identical with blocks 19 and 20. The parts marked 21, 22 and 23 are cleats, and the part [fol. 66] shown in dotted lines and marked 24 is a cleat. The forms of cleat ends that I observed on the Conneaut machine were tongue and groove. On the cleat 21 the part marked 25 is the tongue; and on the cleat 22 the part marked 26 is the groove of the cleat. In the cleats of the

second section, the cleat on the right had its tongue at its advance end and the cleat on the left had its groove at its advance end. This was also true of the fourth section. These blocks marked 28 and 29 were the fifth pair of blocks on the blank set up for the blank that had just been finished. The blocks marked 30 and 31 are the advance blocks of the box blank set up in the rear of the blank just described.

This figure marked Fig. 4 is a cross section of the channel shaped guide and chains on the line 4-4 of Fig. 1. In these figures the part marked 32 is the outer flange of the outer wall of the guideway; that guideway is stationary. The part marked 33 is the inside wall of the guideway. The part marked 34 is the endless chain. These blocks which I have described and as shown in Figs. 2 and 3, are mounted by set screws on this chain marked 34; they can be adjusted at any point time and all on the chain; they can be removed from the chain by loosening the set screws and lifting them off. The occasion for adjusting the blocks on the chain is they have to be adjusted for every different length of cleat used in the box. In Fig. 2 of Plaintiffs' Exhibit 8 there is a recess cut away at 35 at the rear of the cleat positioning finger; that recess was milled away in order to manufacture or make pre-cleated blanks on this machine. It was necessary to cut away the rear part of the cleat positioning finger in order to place this pre-cleated section in the guideway. The pre-cleated sections or the sections that had the cleats stapled to the side sheets before being placed in these channels. I had some conversation with Mr. Brewster with reference to the recess 35 cut into the rear of the cleat positioning finger as shown in Fig. 2 of this Plaintiffs' Exhibit 8. He told me that that had been milled away in order to receive the cleats on the pre-cleated sections of the box blanks. In practicing the pre-cleated method on this Connont machine, I will explain what would be the relationship between the cleat positioning fingers 6 of Fig. 2 and such cleats as would be associated with it; the cleat in front abutting against the front side of the cleat positioning finger and the cleat in the rear would be located close to the rear face of the cut off portion 35. The rear end of the cleat in front of the cleat positioning finger 6 and the advance end of the cleat behind the

[fol. 67] cleat positioning finger 6 would be approximately 5 16ths of an inch apart. I observed the actual thickness of the cleat positioning finger from front to rear at the recess shown in Fig. 2 to be 5 16ths of an inch. Mr. Brewster explained the use of the Conneaut machine for practicing the so-called pre-cleated blank method, but I did not actually observe the practice of that method on the Conneaut machine.

Q. 349. Did you at any time see the use of a Saranac blank machine in the practice of the pre-cleated blank method?

A. I did.

Q. 350. I will ask you to discuss that observation at a later point. From your general observations and your knowledge of wirebound box blank machines, what change would have been required in the set up on the Conneaut machine as you actually observed it, to equip the machine for the practice of the pre-cleated blank method?

A. Not any.

At the Conneaut's Can Company's wirebound box shop when I was there on May 4, 1925, I saw wirebound box-blanks. They were alternate cleat blanks. I will describe the construction of one of the blanks that I saw at the Conneaut Can Company's plant on May 4, 1925. The blanks consisted of four sections stapled, bound together by binding wire, of which the first section consisted of a side sheet without cleats attached. The second section consisted of side sheets with a pair of cleats fastened to this section by staples straddling the binding wire and driven through the sheet into the cleats. The third section was a side sheet without cleats attached. The fourth section was a side sheet with a pair of cleats attached and staples straddling the binding wire driven through the sheet material into the cleats. The binding wires were attached to the cleatless sheets of the first and third blank sections by staples driven astraddle of the binding wire through the sheets and clinched on the other side. That thing marked 36 in Fig. 1 of this drawing Plaintiffs' Exhibit 8 is what they term a clincher block. Describing what I observed on the Conneaut machine on May 4, 1925, with reference to that clincher block 36, I observed these clincher blocks on the outside wall of the right and left guide-ways. I mean that

there was one of these clincher blocks on the outside of each of the two guide ways. This clincher block was pivoted to the bed of the machine at one end of the block. [fol. 68] This pivotal connection of the block to the bed of the machine is indicated in the drawing Plaintiffs' Exhibit 8 by the numeral 37. I observed something else about that so-called clincher block 36; the front or loose end of that clincher block was curved and a portion of the outside wall of the channel was cut away, allowing the curved portion of the clincher lock to protrude in the channel in the pathway of the cleats. That pivot 37 was vertical. The thing marked 29 on Plaintiffs' Exhibit 8 is a spring, a flat spring. It is mounted on a stud in the clincher block at one end and a stud fastened in the frame of the machine at the other. The effect of that spring 29 was to hold the curved end of the clincher block in the channel in the path of the cleats. I did not observe on the Consonant machine how this clincher block 36 operated.

Q. 367. Did you or did you not see a like clincher block on any other Sorvalue machine?

A. I did.

Q. 368. I will ask you to discuss that at a later point. Can you produce a drawing showing this clincher block 36 in plan view in the position in which you observed it on the Consonant machine on May 4, 1925?

A. I can and do.

(Here follows Plaintiffs' Exhibit No. 9, side folio 68½.)

By Mr. Janney: The drawing just produced by witness is marked for identification as Plaintiffs' Exhibit No. 9.

There are several figures on this drawing marked Plaintiffs' Exhibit 9 for identification. The one I have just referred to as showing in plan view the so-called clincher block as I observed it on the Consonant machine is Fig. 1. In the Fig. 1 the part marked 36 is the clincher block. The part marked 37 is the pivoted point. The part in dotted lines marked 29 is the spring. The part marked 40 is the curved end that protrudes into the pathway of the cleat. The part marked 41 is the cleat. The part marked 42 is the tongue end of the cleat. The part marked 43 is the spacer block. The part marked 44 is the cleat positioning

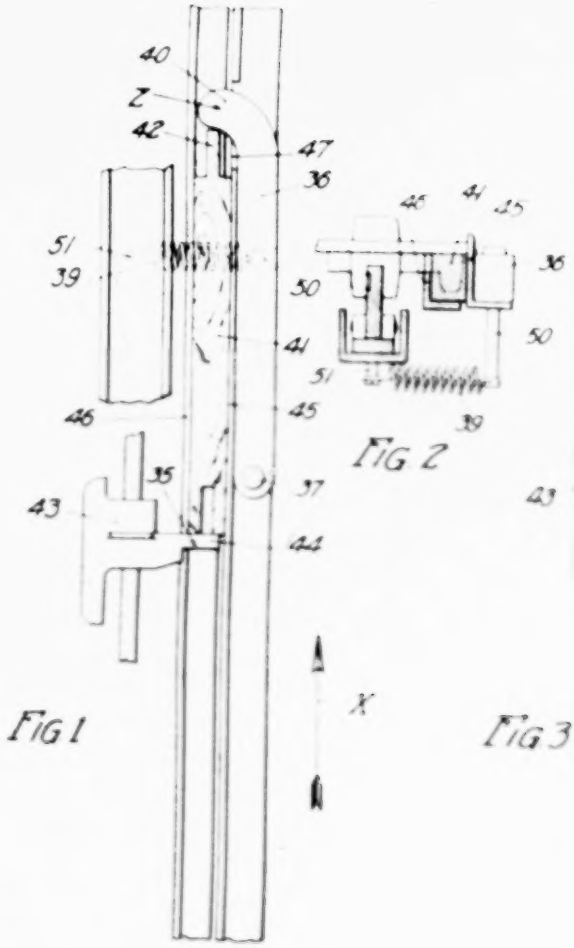



FIG 1




FIG 2

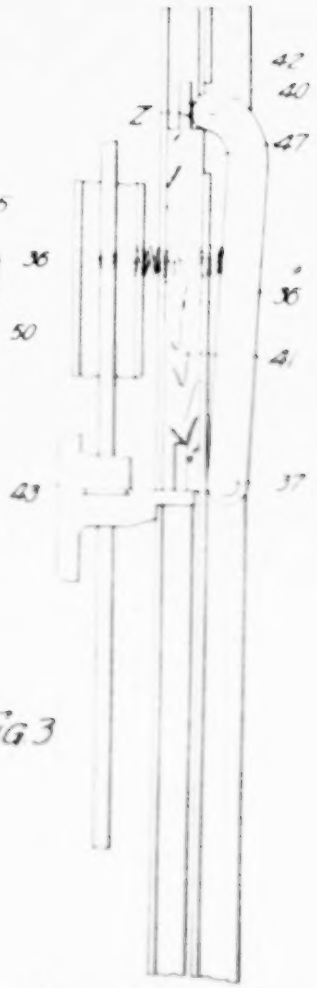



FIG 3

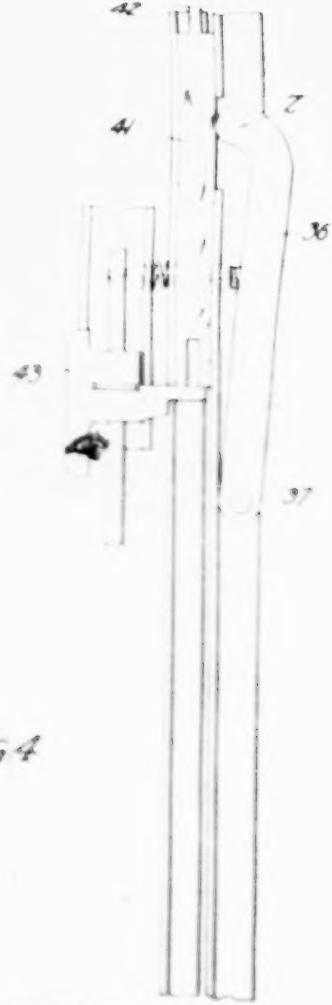



FIG 4

**Plaintiffs' Exhibit No. 9, Drawing of Clincher Block on Defendant's Machine.**

finger. The part marked 45 is the outer wall of the guideways. The part marked 46 is the inner wall of the guideways. This space marked 47 is the portion of the outside wall of the guideway cut away to receive the clincher block. This spacer block 43 shown in Fig. 1 of the drawing marked Plaintiffs' Exhibit 9 for identification is identical with the block shown in Fig. 2 on Plaintiffs' Exhibit 8. [fol. 69] Referring again to Plaintiffs' Exhibit 9, Fig. 1 thereof, the parts, the arrangement and the relationships thereof there shown are not the same as the corresponding parts which I observed on the Comeaut machine on May 4, 1925.

Q. 283. According to a stipulation already of record in this suit, the defendant Sarome Automatic Machine Corporation has leased machines and licensed the use thereof for the manufacture of wirebound box blanks to H. R. Gibbons Box Company of Chicago, Illinois. Have you recently been in the wirebound box shop of the H. R. Gibbons Box Company of Chicago?

A. I have, I believe May 19, 1925.

At the Gibbons Company's plant on that day I saw two box blank machines. I examined those machines. Neither of them was in operation. I have means of identifying those box blank machines I saw at the Gibbons plant. I identified them both by their general construction and the one by the name plate which read, "Property of the Sarome Automatic Machine Corporation." These machines which I observed at the Gibbons Company's wirebound box shop on May 19, 1925, were not the same as to the workholding devices as the machine illustrated in Plaintiffs' Exhibit 8, but I don't remember whether on the Gibbons machine the rear portion of the cleat positioning finger was cut away as indicated at 45 in Fig. 2 of Plaintiffs' Exhibit 8.

Q. 290. I show you a drawing bearing a label which reads, "United States District Court, Northern District of Illinois, Eastern Division. Wirebound Patents Company and One Box Machine Makers, Plaintiffs, vs. H. R. Gibbons Box Company, Defendant. In Equity No. 2689. Plaintiffs' Exhibit 9," the drawing being entitled "Plaintiffs' Exhibit Drawings of Defendant's Machine, Sheet 1," and comprising three figures. Please compare the devices

shown in this drawing with the work holding elements of the machine which you observed on May 19, 1925, at the Gibbons Box Company's plant, as you have described it;

A. This is identical in construction with the one that I saw at the Gibbons plant with the exception that the spacer block C shown in Fig. 3 had simply a plain groove cut in it to fit down over the chain B, and the cleat positioning fingers D were shaped as shown in Fig. 2 of Plaintiffs' Exhibit 8 instead of as shown in Fig. 3 in this present drawing. Also, the set-up in this present drawing shows the spacer blocks having the cleat positioning fingers D as being the second pair and the fourth pair of blocks, [fol. 70] whereas in the machine as I saw it the blocks having the cleat positioning fingers were the third and fifth pairs.

By Mr. Janney: It is stipulated and agreed between counsel for the respective parties to this suit that the drawing just referred to by the witness and labeled as above described in question No. Q. 390, is a true and accurate reproduction of the original Plaintiffs' Exhibit No. 9 in the suit of Wirebounds Patents Company and 4 One Box Machine Makers v. H. R. Gibbons Box Company, in Equity No. 2689, in the United States District Court for the Northern District of Illinois, Eastern Division, and that said drawing is the one referred to as "Plaintiffs' Exhibit Drawings of Defendant's Machine, Sheet 1," in the record of said suit in Equity No. 2689 on page 148 of plaintiffs' printed record therein in the deposition of Arthur S. Browne and on following pages of said deposition.

By Mr. Janney: The drawing referred to by the witness in the next preceding answer and just identified by agreement of counsel is now offered in evidence in the present cause as Plaintiffs' Exhibit No. 10.

(Here follows Plaintiffs' Exhibit No. 10, side folio 70½.)

That in this drawing the cleat positioning fingers were in the second and fourth pairs of spacer blocks, while in the machine as I saw it they were in the third and fifth pairs of spacer blocks,—means no difference except that in the drawing the first and third sections of the blank would be cleated and the second and fourth would be uncleated, while

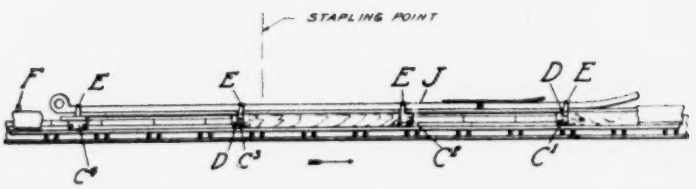



FIG. 2.

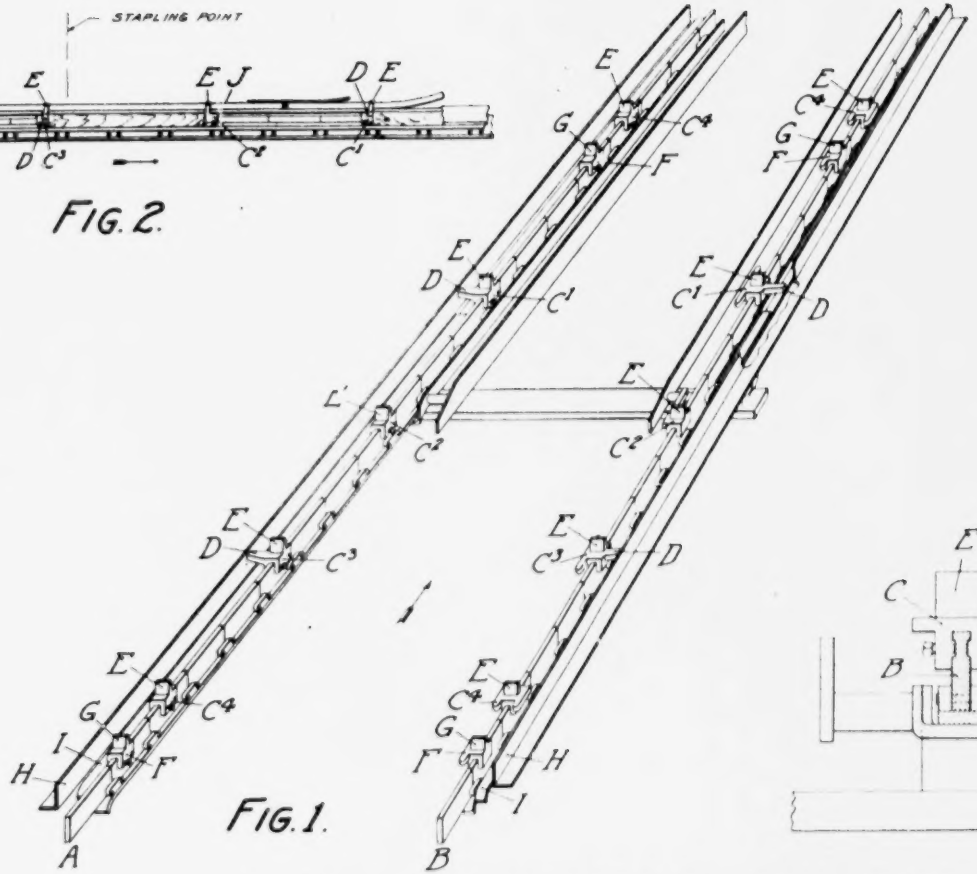



FIG. 1.

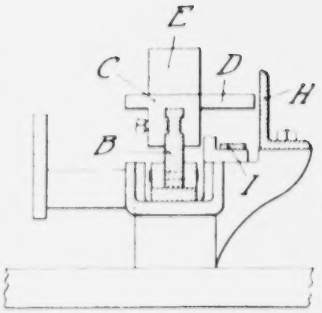



FIG. 3.

Plaintiffs' Exhibit No. 10, Drawings of Defendant's Machine, Sheet I.
(Reproduction of Plaintiffs' Exhibit No. 9 in the Gibbons Suit.)

in the machine as I saw it the first and third would be uncleated and the second and fourth would be cleated. Of course, this does not mean that there is any difference in the finished blank because it is immaterial how the cleated and uncleated sections alternate.

There is something lacking from this present drawing which I observed on the machine at the Gibbons box plant on May 19, 1925. I do not see on this drawing the clincher block which I observed on the Gibbons machine. The character of the clincher block that I saw on the Gibbons machine was exactly as shown at 36 in Plaintiffs' Exhibit 8 and Fig. 1 of Plaintiffs' Exhibit 9.

On the Saranac machine which I observed at the Gibbons Box Company's plant on May 19, 1925, with the set-up of the workholding devices as I then saw them, there could have been made the alternate cleat or the pre-cleated blank with the same set up. That is, the pre-cleated blank could [fol. 71] have been made on that same set-up if the cleat positioning fingers had been cut away as shown at 35 in Fig. 2 of Plaintiffs' Exhibit 8, and I cannot remember now whether they were so cut away or not. No change would have been necessary in the Gibbons machine to permit the use therein of spacer blocks exactly like those shown in Fig. 2 of Plaintiffs' Exhibit 8, including the recess 35 cut away on the rear side of the cleat positioning finger 6.

Q. 396. According to a stipulation already of record in this suit, the defendant Saranac Automatic Machine Corporation has leased machines and licensed the use thereof for the manufacture of wirebound box blanks to Gondert & Lienesch at Dayton, Ohio. Have you ever visited the wirebound box-blank shop of this concern?

A. I have, on May 5, 1925.

Explaining the circumstances under which I visited that plant and stating generally what I did, I called at the office of the Gondert & Lienesch plant and asked their office manager if I would be permitted to watch the operation of the wirebound box machine. He asked me to call at the factory and ask for Mr. Lienesch, Jr., who was foreman of the wirebound department. I called at the factory and met Mr. Lienesch. I had a conversation with Mr. Lienesch as to his methods of manufacturing wirebound boxes. He took me in the factory where the machine was installed.

I got close enough to this machine at the Gondert & Lienesch plant to put my hands on it and observe it. I had means of identifying that machine by my familiarity with the Saranac machines and also the name plate, which said, "Property of the Saranac Automatic Machine Corporation." I saw one of those Saranac machines at the Gondert & Lienesch plant, and I saw it in actual operation making box blanks. I examined the product of the operation of that machine as I witnessed it. The product was wirebound box blanks. These blanks consisted of four sections, two cleats to each section, wired together by staples straddling binding wires and driven through the sheets and into cleats. On these blanks that I saw manufactured on the Gondert & Lienesch machine there were eight cleats altogether on each blank and four side sheets. Describing the relationship of the side sheet edges and the cleat ends on the product of this Gondert & Lienesch machine as I observed them on May 5, 1925: The first and third sections of this blank, the side sheets on these sections had one-fourth inch margin beyond each cleat end. The second and fourth sections of this blank, the width of these sections was equal [fol. 72] to the length of the cleats.

In folding the blank which I have just described, the effect of the one-fourth inch margin of the side sheets projecting beyond each cleat end on the first and third sections of the blank was that the projecting one-fourth inch on the first and third sections would overlap the side sheets of the second and fourth sections. This blank produced on the Gondert & Lienesch machine as I observed it was the same as the standard wirebound box blank produced by the blank machines of the plaintiff 4 One Box Machine Makers, with the exception that the first and third sections of the Gondert & Lienesch blank had staples driven through the sheets and into the cleats in order to hold the cleats to these sections. These staples were under the binding wires, and were not driven on the blank machine, but at some other time, before these sections were assembled in the blank machine. In the finished blank these pre-cleating staples I have just described have no relation to the binding wires. On the first and third sections of the Gondert & Lienesch blank, which as I have said had these pre-cleating staples, the binding wire was secured to those sections by staples straddling the binding wire driven through the sheets and

into the cleats. Those staples straddling the binding wire were driven into the first and third sections on the blank machine.

I have referred to the use of staples in this pre-cleating operation for securing a pair of cleats to each of the first and third side sheets of the blanks before they are put into the blank machine. There is a considerable saving in labor cost if staples are used in that pre-cleating operation instead of nails or tacks; staples are cheaper than nails and they have stapling machines to staple these cleats to the sheet.

Q. 419. For convenience I shall refer to these machines for stapling the sheets to the cleats as pre-cleating machines. Have you ever seen one of these pre-cleating machines?

A. Yes, sir; at the Gondert & Lienesch plant.

Describing that pre-cleating machine that I saw at the Gondert & Lienesch plant, and stating when I saw it there: I saw this machine at the Gondert & Lienesch plant on May 5, 1925. It was the standard stapling machine with a large flat table running fore and aft of the stapling point. Guides were fastened to this table top. These guides in cross-section were channel shaped, running fore and aft of the stapling point. The guides were adjustable sideways as to [fol. 73] this table. The purpose of that adjustability was in order to make different length side sections. I witnessed the operation of this pre-cleating machine at the Gondert & Lienesch plant. Describing that operation: They have in stapling these pre-cleated sections what they term a pusher to feed these side sections in a forward step-by-step motion under the stapling point by hand. These cleats of the pre-cleated section are placed in the guideways. The sheet of this side section is placed on the cleats. The width of these sheets is approximately one-half inch wider than the length of the cleats.

The pusher that is used is made from approximately the same material and it is made of two blunt end cleats placed in this channel with a sheet stapled fast to these blunt cleats and the ends of these blunt cleats protruding beyond the edge of the side sheet approximately one-fourth inch.

The cleats for the side section are placed in these channels and positioned with their rear ends against the pro-

truding ends of the cleats on the pusher. The sheet for the pre-cleated section is placed on the cleats for the pre-cleated section with the rear edge of the sheet for the pre-cleated section abutted against the front edge of the sheet of the pusher. Then it is fed by hand with an intermittent forward step-by-step motion under the stapling head and the staples are driven through the side sheets of the pre-cleated section and into the cleats.

On that pre-cleating machine no binding wires are attached to the pre-cleated section. The product of this pre-cleating machine is a box section consisting of a sheet and two cleats. The side sheet protrudes approximately one-fourth inch beyond each cleat end.

I can and do produce a drawing showing what I observed as to this pre-cleating machine and its product at the Gondert & Lienesch plant on May 5, 1925.

By Mr. Janney: The drawing produced by the witness is marked for identification Plaintiffs' Exhibit No. 11.

(At this time Howard M. Cox, Esq., of counsel for the defendant, appeared and attended the examination.)

(Here follows Plaintiffs' Exhibit No. 11, side folio 73½.)

This drawing was made by a draftsman under my directions.

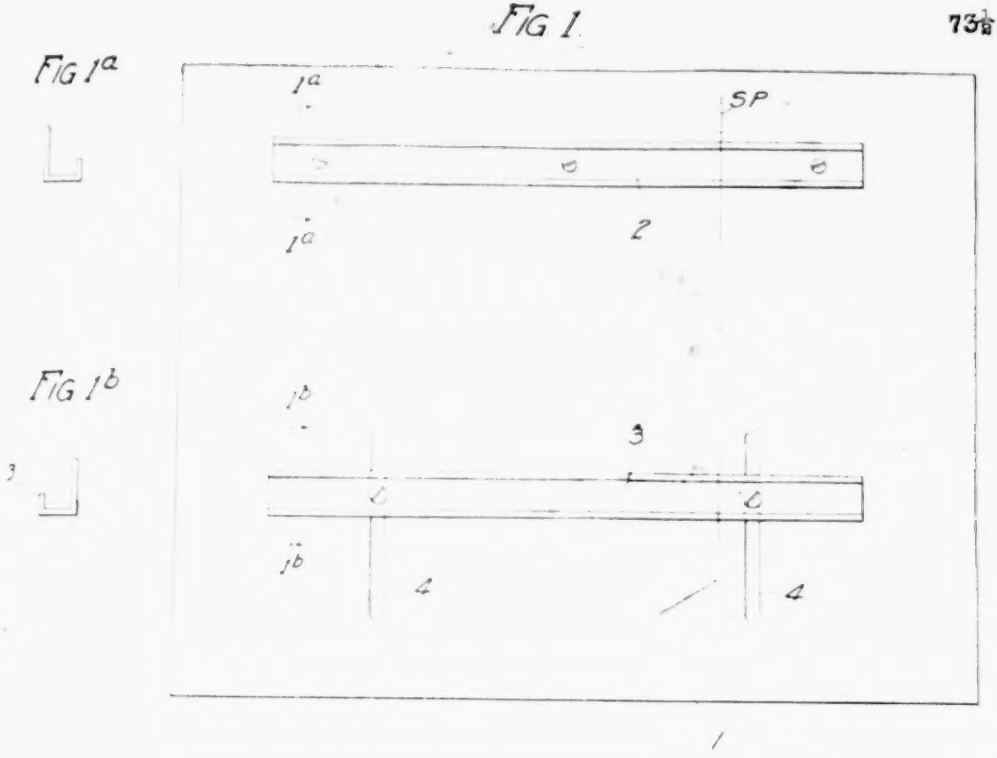
Q. 429. Who else, if anyone, participated in the supervision of the making of this drawing?

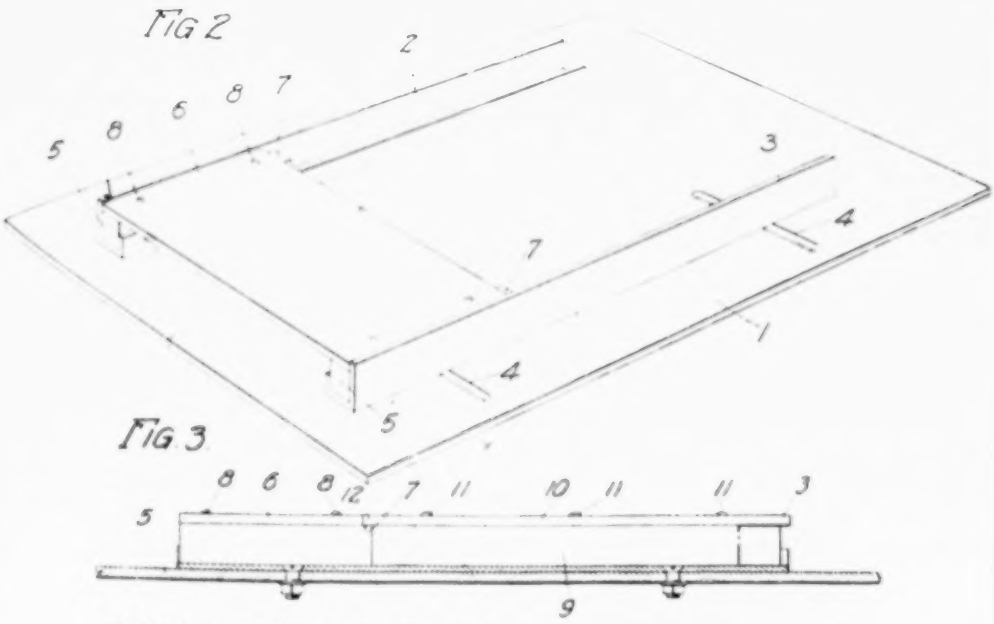
[fol. 74] A. Mr. Janney asked me to have the drawing show the table and the guideways of this machine.

Mr. Janney had nothing to do with the making of this drawing beyond what I have just stated.

I identified this pre-cleating machine that I saw at the Gondert & Lienesch plant by my familiarity with the Saranac machines. I identified that pre-cleating machine as a standard stapling machine of their type that they use for stapling different materials,—of the type of the Saranac Automatic Machine Corporation. I had seen machines of that type before. I saw one at the Conneaut Can Company, at Dayton, Ohio. I have been generally familiar with that type of Saranac machine for fifteen years.

In this drawing Plaintiffs' Exhibit 11 for identification, Fig. 1 is the table top showing the channels fastened there-







**Plaintiffs' Exhibit No. 11, Drawing of Pre-Cleating Machine and Product at Gondert & Lienesch Plant.**

to, a plan view. Fig. 1 a is the cross-section of the channel 2, taken on the line 1 a 1 a. Fig. 2 on Plaintiffs' Exhibit 11 is the perspective of the table top and workholder, and cleats in the channel, and the sheet stapled thereto, representing the pusher. Fig. 3 is a view of the pre-cleated section, with sheets stapled to the cleats and also showing the pusher as it works and serves against the pre-cleated section, a plan view.

Q. 444. Isn't it a side elevation?

A. Side elevation, yes.

In these various figures the part marked 1 is the table top. The part marked 2 is the channel. The cross-section of that channel is Fig. 1 a. The part marked 3 is channel. Fig. 1 b is the cross-section of the channel 3. These things marked 4, 4, in Figs. 1 and 2, are slots in the top of the table. They are for side adjustment of the channel 3. The two parts marked 5, 5, in Fig. 2, are cleats, square-ended cleats. They form a part of a pusher as shown in Fig. 2. The part marked 6 in Fig. 2 is sheet. The sheet 6 is stapled to the cleats 5. These parts marked 7, 7, in Fig. 2, are the ends of cleats protruding beyond the edge of the sheet 6. The ends 7 of the cleats 5 project beyond the edge of the sheet 6 approximately $\frac{1}{4}$ inch. These things 8, 8, in Figs. 2 and 3, are staples; they hold the sheet in the pusher to the cleats in the pusher. In Fig. 3 the part 9 is the cleat of the pre-cleated section. The part 10 is the side sheet fastened to the cleat of the pre-cleated section. The things 11 are staples that hold the side sheet to the cleat of the pre-cleated section. The part marked 12 is the $\frac{1}{4}$ inch margin that protrudes beyond the cleat ends, margin of the side sheet. This thing 13 at the right-hand end of Fig. 3 is also a [fol. 75] $\frac{1}{4}$ inch margin that protrudes approximately $\frac{1}{4}$ inch beyond the cleat ends. I indicate on the drawing Plaintiffs' Exhibit 11 approximately where the stapling point is on that machine. (Witness indicating on drawing.) I mark the line that I have just drawn S P.

By Mr. Janney: The drawing Plaintiffs' Exhibit No. 11 is offered in evidence.

After the pre-cleated sections had been produced on the machine illustrated in Plaintiffs' Exhibit 11 they were taken and put through the blank machine. I observed the insertion of pre-cleated sections into the blank machine at

the Gondert & Lienesch plant at my visit already referred to. Two pre-cleated sections were used on the Gondert & Lienesch machine for each blank. Those two pre-cleated sections were located in the first and third sections of the blank. Loose cleats and loose side sheets constituted the other sections of the blank that were assembled with the pre-cleated sections. And the loose cleats and the loose side sheets were in the second and fourth sections of the blank.

Describing the workholding devices which I observed on the Saranac machine at the Gondert & Lienesch plant on May 5, 1925, as it was employed with the two pre-cleated sections and the two sections of loose side sheets and cleats: There were two guideways running fore and aft of the stapling point, endless chains and to these endless chains were fastened spacer blocks. The cross-sections of the guideways were channel shaped. Ten spacer blocks in all were used for each blank on the Gondert & Lienesch blank machine. They were arranged in pairs, five on each chain. The spacer blocks for the advance end of this blank were fastened to the chain with set screws and had a fin protruding upward on this block. The purpose and effect of that fin was to hold the front edge of the sheet of the first section. The first section was pre-cleated. The second pair of spacer blocks, consisting of one right and one left, was exactly the same as the first pair of spacer blocks and had the upward protruding fin. The purpose and effect of those fins on the second pair of spacer blocks was to hold the rear edge of the first section and also to position the front edge of the second section, the sheet section.

The third set of spacer blocks on the Gondert & Lienesch machine consisted of right and left blocks identical in construction with the first and second pair of spacer blocks with the exception that the third pair of spacer blocks had [fol. 76] a protruding finger that reached in the guideway in the path of the cleats.

The finger on the spacer block of the third pair of spacer blocks positioned the loose cleat in the second section. The rear end of the loose cleat was positioned against the front face of the cleat positioning finger. In the third pair of spacer blocks, both blocks, both right and left

blocks, had this cleat positioning finger which I have just described.

The fourth pair of spacer blocks were identical in construction with the first and second pair of spacer blocks. The fourth pair of spacer blocks had the upwardly projecting fins.

The third pair of spacer blocks had these upwardly projecting fins. The purpose and effect of the fins on the third pair of spacer blocks was to position the sheets of the second and third sections, the rear edge of the second section and the front edge of the third section.

The purpose and effect of the upwardly projecting fins of the fourth pair of spacer blocks was to hold the rear end of the third cleat [sheet] section and the front edge of the fourth section.

The fifth pair of spacer blocks were identical with the third pair of spacer blocks, having an upwardly protruding fin and the cleat positioning finger. The purpose and effect of the upwardly projecting fin on the fifth pair of spacer blocks was to position the sheet in the fourth section. The purpose and effect of the cleat positioning fingers of the fifth set of spacer blocks was to position the cleats of the fourth section. On the fourth section those cleats were loose as to the side sheets.

As I observed the operation of this Saranac machine at the Gondert & Lieuesch shop, the cleats of the first section were in a predetermined relationship with the sheets of the first section and every other part of the blank as they were assembled preparatory to stapling. They were in a foldable relation so that when they were tied together with the binding wire they would fold and the cleats would interlock, and the sheets of the first section would overlap the sheets of the second section. The rear ends of the cleats of the first section were spaced apart from the front ends of the cleats of the second section, about 5 16 inch. That is just the same as the general practice in making wire-bound box blanks upon the blank machines of the 4-One Box Machine Makers, one of the plaintiffs.

On the Saranac machine that I observed at the Gondert & Lieuesch shop, serving to hold the cleats of the first section and the cleats of the second section in their foldable [fol. 77] spaced relationship which I have just described, were the so-called clincher block and the fins of the spacer

blocks, and the cleat positioning fingers of the third and fifth pair of spacer blocks. Describing just what office was performed by the fins I have referred to in relation to this matter of spacing the cleats of the first section from the cleats of the second section: The fins of the first and second pairs of spacer blocks held the sheet of the first section of the blank. To this section cleats had been pre-stapled in a predetermined relation of the edge of the sheets to the cleat ends. The fins of the third set of spacer blocks and the fins of the second set of spacer blocks held the sheets of the second section in a predetermined relation to the first section, and the cleat positioning finger on the third set of spacer blocks held the cleats of the second section in a predetermined relation to the side sheet of the second section as well as the cleat ends of the first section.

The fourth set of spacer blocks held the sheets of the pre-cleated section against the fins of the third set of spacer blocks.

The fifth set of spacer blocks,—the fins held the sheet against the fins of the fourth set of spacer blocks, and the cleat positioning fingers of the fifth pair of spacer blocks positioned the cleat of the fourth section relative to the sheet of the fourth section and to every other part.

To make it entirely clear, the fins on the second pair of spacer blocks—on the first and second pair of spacer blocks—held in position the first pair of cleats, since the fins of the first and second spacer blocks held the sheet in the first section in place and to that sheet was pre-stapled the cleats of the first section.

The cleats of the third section were held in position by the fins on the third pair of spacer blocks and the fins on the fourth pair of spacer blocks. They held this sheet section in place and to this sheet section was pre-stapled the cleats of this third section.

(At this time Howard M. Cox, Esq., counsel for the defendant, withdrew from the examination with the request that plaintiffs' counsel proceed with the examination as though Mr. Cox were present.)

On the Saranac machine as I observed it at the Gondert & Lienesch shop, the first pair of cleats and the third pair of cleats of a blank were in a foldable relationship so that

when folded the cleats of the first and third sections would be the cleats of the opposite sides of the made-up box. On that same machine the first and fourth pairs of [fol. 78] cleats in a blank were in a foldable relationship so that when the blank was folded in box form the front end of the cleats in the first section were interlocked with the rear end of the cleats of the fourth section.

I have said that the first and pre-cleated section on this Gondert & Lienesch machine was positioned a certain distance away from the third and pre-cleated section, so that there was a certain distance between the rear ends of the cleats of the first section and the front ends of the cleats of the third section. That certain distance was provided on that machine between the rear ends of the first pair of cleats and the front ends of the third pair of cleats so that it would fold in a foldable relation. The first and second sections were close together and were in a foldable relationship. The first and third sections were spaced apart a certain distance to receive the cleats of the second section.

In describing the Saranac machine that I saw at the box shop of the Conneaut Can Company I referred to a so-called clincher block, the end of which stood in the path of the cleats. There was a clincher block like that on the Saranac machine I saw at the Gondert & Lienesch shop. They were just the same. I saw the clincher block on the Saranac machine at the Gondert & Lienesch shop operate; I saw the movements of it while the machine was in operation.

It was mounted on the outside of each channel, one end pivoted and the other end was curved and the curved end was toward the channel; and a part of the outside channel wall was cut away to receive this curved end of the clincher block. The clincher block was held in position by a spring. The spring held the curved end of the clincher block in the path of the cleats unless the clincher block was being held out by a cleat.

The construction of the blank machine and the work-holding parts, including the spacer blocks, as I observed them on the Gondert & Lienesch machine, was just the same as the Saranac machine described as I observed it at the Conneaut Can Company's shop. Plaintiffs' Exhibit

No. 8 [ante, p. 65] represents the machine parts as I observed them on the Gondert & Lienesch machine. On Plaintiffs' Exhibit No. 8 Figs 2 and 3 showing the spacer blocks are just the same as the spacer blocks which I observed on the Gondert & Lienesch machine. I can and do produce a drawing showing the Gondert & Lienesch machine as I observed it and the assembled blank with the two pre-cleated sections as I observed them at the Gondert & Lienesch plant.

[fol. 79] By Mr. Janney: The drawing just produced by the witness is marked for identification Plaintiffs' Exhibit 12.

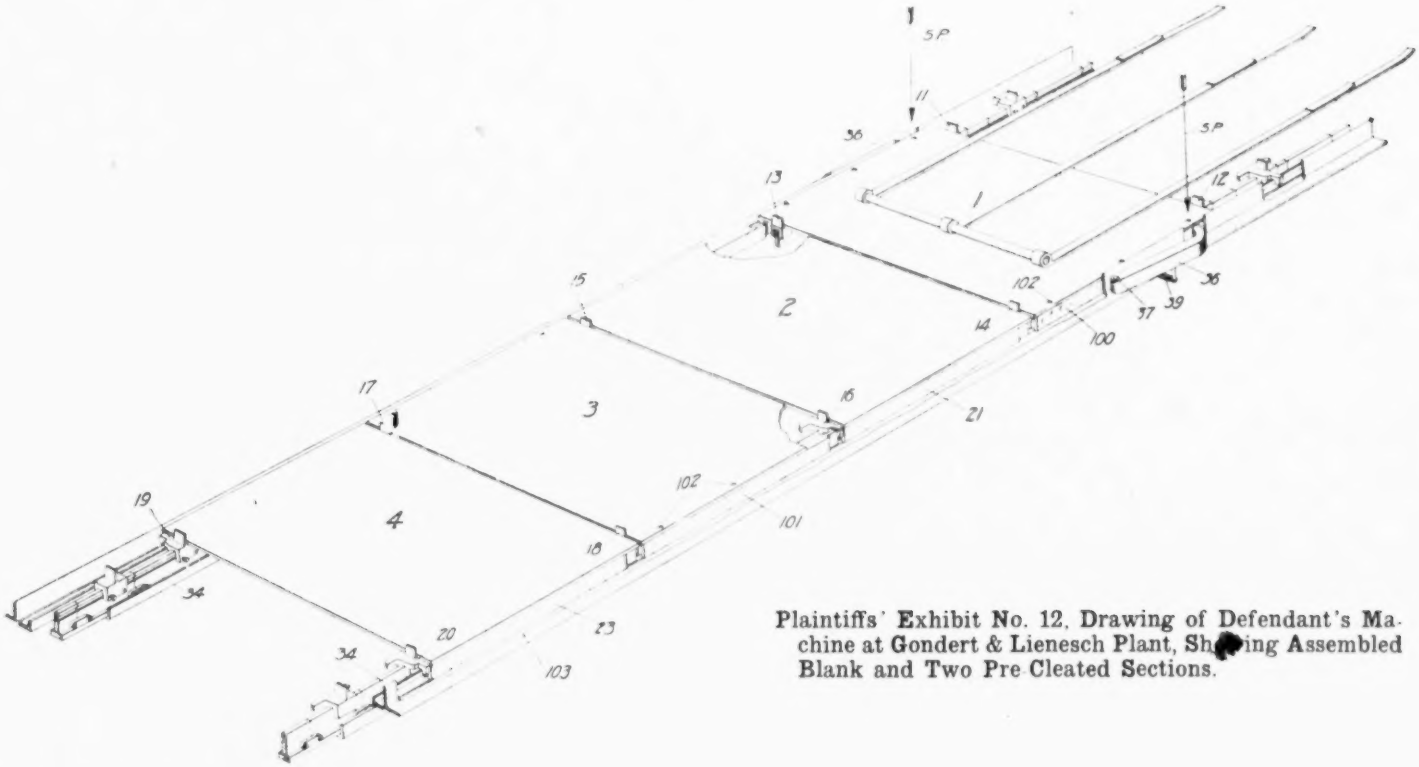
(Here follows Plaintiffs' Exhibit No. 12, side folio 79½)

It was prepared by a draftsman under my supervision. The reference numerals on this drawing, Plaintiffs' Exhibit No. 12 for identification, and the reference numerals on the drawing Plaintiffs' Exhibit No. 8, refer to parts of the same construction, and the description of those parts as I gave it in detail in describing Plaintiffs' Exhibit No. 8 applies equally and accurately to the drawing Plaintiffs' Exhibit No. 12 for identification.

In Plaintiffs' Exhibit No. 12 this part marked 100 is a cleat of the first pre-cleated section. This part marked 21 is a cleat, a loose cleat of the second section. This part marked 101 is a cleat of the third section which was a pre-cleated section. This part marked 23 is a loose cleat of the fourth section. These things marked 102 are staples; they were driven before the pre-cleated section was placed in the blank machine. The arrangement of the machine parts and the arrangement of the box parts in Plaintiffs' Exhibit No. 12 is just the same as I observed on the Gondert & Lienesch machine on May 5, 1925.

On 103, a wavy line extending along what appears to be the outer wall of the channel indicates that the outside channel is cut away in this drawing so that you can see the edges of the cleats.

In Plaintiffs' Exhibit No. 12 the part marked 36 is clincher block. The clincher block in Plaintiffs' Exhibit No. 12 has been pushed in an outward position by the cleat No. 100; in Plaintiffs' Exhibit No. 8 the curved end of the clincher block is in the path of the cleats.




Plaintiffs' Exhibit No. 12, Drawing of Defendant's Machine at Gondert & Lienesch Plant, Showing Assembled Blank and Two Pre Cleated Sections.

I saw alternate cleated blanks in the factory of Gondert & Lienesch. The alternate blanks that I saw at the Gondert & Lienesch plant consisted of four side sheets tied together by binding wires. On the first section of these side sheets the staples were driven over the binding wires and clinched on the under side of the sheet and the cleats were omitted. On the second section of this blank the staples were driven over the binding wire and through the sheets and into the cleats. On the third section, which had the cleats omitted, the staples were driven over the binding wire and through the sheets and clinched on the under side of the sheets. The fourth section had the staples driven over the binding wire and through the sheets and into the cleats.

I saw some of those alternate cleated blanks being set up in finished boxes at the Gondert & Lienesch plant. The [fol. 80] ends used in making up those boxes were end panels which had a cleat stapled to each end of these end panels. When those ends were assembled with the alternate cleated blanks at the Gondert & Lienesch plant, the two cleats on the end panels and the two cleats on the alternate blank sections at each end of the box were in a folding relation. The cleats of the end panels would interlock with the cleats of the second and fourth sections of the blank. The relationship of the cleats on the ends and on the alternate cleated blank, when they were assembled in box form, was just the same as the relationship of the cleats in the 4-One wirebound box as made by plaintiffs' licensees. The relationship of the cleats in the box so made from the alternate cleated blank with the cleated ends was just the same as the relationship of the cleats in the pre-cleated type of blank when folded.

After the pre-cleated ends had been assembled with the alternate cleated blank at the Gondert & Lienesch plant, on the sections where the cleats were omitted in the alternate cleat blanks there were staples driven over the binding wire and through the sheets and into the cleats that had been pre-cleated on the end panels.

I can and do produce a drawing showing the completed box as observed by me at the Gondert & Lienesch plant made from the alternate cleated blank and the pre-cleated ends.

By Mr. Janney: Plaintiffs' counsel marks the drawing just produced by the witness Plaintiffs' Exhibit 13 for identification.

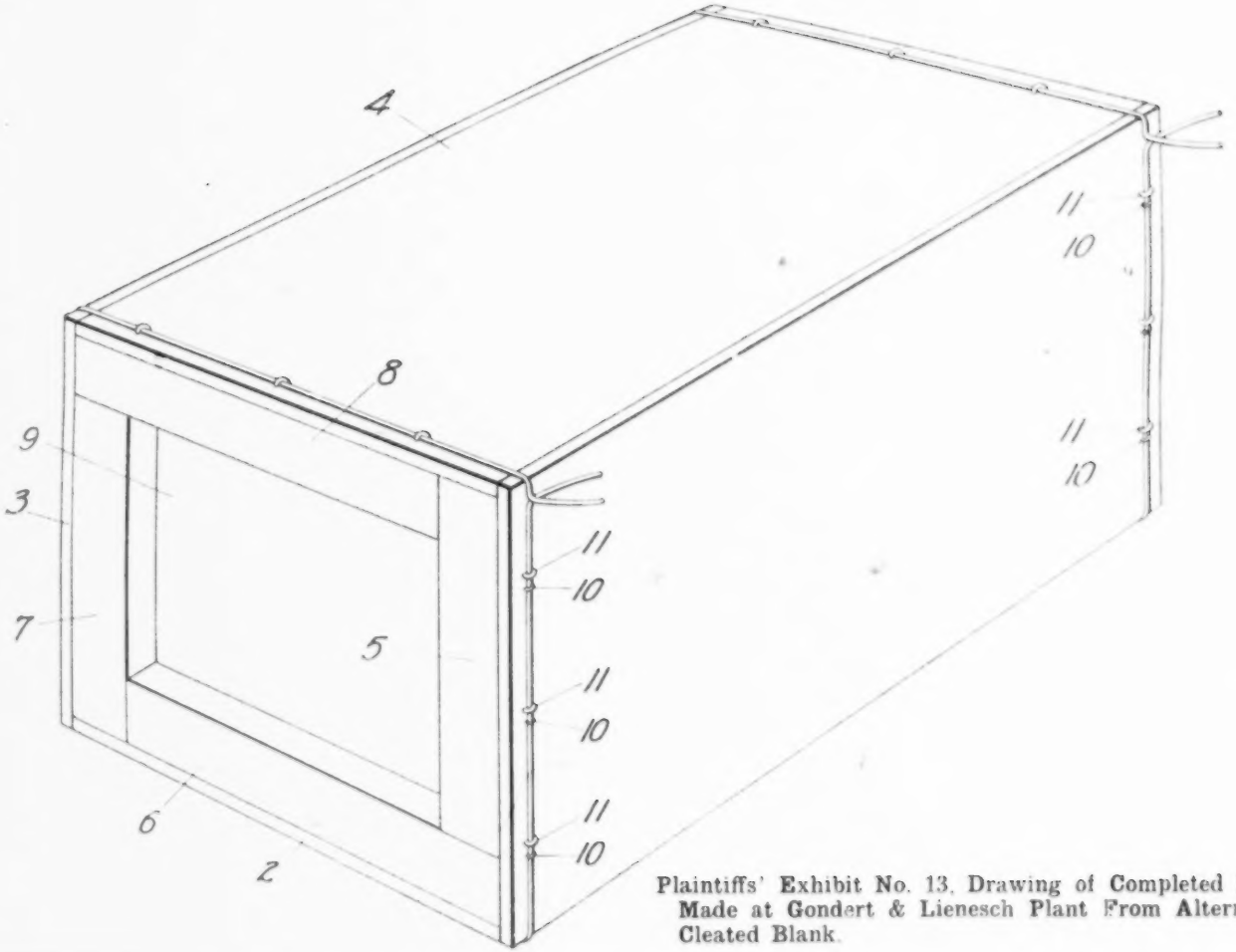
(Here follows Plaintiffs' Exhibit No. 13, side folio 80½)

The four side sections of the box shown in Plaintiffs' Exhibit 13 are marked, respectively, 1, 2, 3 and 4. Sections 2 and 4 were cleated on the blank machine; sections 1 and 3 remained uncleated on the blank machine. The cleats at the left-hand end of the box are numbered 5, 6, 7 and 8. Cleats 6 and 8 were secured to the blank on the blank machine. The part marked 9 is end panel. Cleats 5 and 7 had been attached to the end 9 before being assembled with the box. These things marked 10-10 are staples; they were inserted on the blank machine. The things marked 11 are staples; they were driven with the end stapling machine, at the assembling of the box, when the ends were put in the box. Staples 10 and 11 are different; staples 10 are made from 17-gauge stapling wire, and the length of the legs is approximately one-half inch. The staple marked 11 is made from 16-gauge stapling wire, and the legs are seven-eighths inch long.

[fol. 81] Describing exactly the condition of the blank at the time the staples 11-11 were driven and as I observed the practice at the Gondert & Lienesch plant: The blank is put in box formation, just as it is shown on this drawing, Plaintiffs' Exhibit 13, and then placed in the end stapling machine, and the staples marked 11 are driven through the side sheets marked 1 and 3, and into the cleats marked 5 and 7. When those staples 11 are driven, the end panels 9, at that time, are pre-stapled to the inside surfaces of the cleats 5 and 7, and these cleats are interlocked with the cleats 8 and 6. I have referred to 17 and 16-gauge wire; 16 gauge has the greater diameter.

As I observed the operation of the Saranac machine at the Gondert & Lienesch shop in making the blank having two pre-cleated sections, not a thing would have to be done to the workholding elements of the machine so operated in order to use it for making the alternate cleated blank like the one illustrated in the drawing, Plaintiffs' Exhibit No. 13.

I talked to Mr. Lienesch, Jr., at the Gondert & Lienesch plant with reference to the making of alternated cleated




Plaintiffs' Exhibit No. 13. Drawing of Completed Box Made at Gondert & Lienesch Plant From Alternate Cleated Blank.

blanks on the Saranac machine at that plant; he is foreman of the wirebound box department of Gondert & Lienesch. I asked him why he made both the alternate cleated blanks and the pre-cleated blanks, and he told me that he had facilities for ending up the alternate cleated blanks, and that when they delivered boxes made up, it was their practice to make alternate cleated blanks, and when they shipped their box blanks in the flat to their customers, it was their practice to make these blanks with pre-cleated first and third sections. When I refer to delivering the boxes "made up," I mean folded in box form with the ends stapled; that is just the same as what is shown in Plaintiff's Exhibit No. 13.

There is some advantage in the practice described to me by Mr. Lienesch, Jr., of delivering the alternate cleat boxes made up and delivering the pre-cleated blanks in the flat. The blanks with the pre-cleated sections are much easier folded in box form, and the end panels can be nailed on the inner faces of the cleats by hand with hammer and nails as well as being stapled with the stapling machine. The alternate cleat blanks must be folded around the edges of the end panels where the side cleats are pre-stapled to the end panels, which is a difficult task and needs a man who is familiar with this in order to fold this blank perfectly, and it is almost impossible to drive staples by hand over the binding wires and through the sheets and into the [fol. 82] cleats that have been pre-attached to the end panels.

The method of using an eight-cleated blank is the cheaper. They are much easier folded in box formation, and the users of wirebound boxes have been handling and using blanks with eight cleats and are familiar with the handling of same. The element of cheapness in the use of the eight-cleated blank, as compared with the use of the alternate cleated blank, is folding the box in box formation. The amount of labor it takes to assemble a box with eight cleats is much less than the amount of labor it takes to assemble a box with alternate cleats. One person can fold an eight-cleated box very easily, and can nail the end panels and the inside faces of the cleats by hand, if so desired, or can staple them in with a stapling machine with one operation for each end. In the alternate cleated blank it takes two persons, one at each end, to properly fold this

blank around the end panels having the cleats pre-attached thereto; and it is almost impossible to drive staples over the binding wire and through the sheets and into the cleats attached to the end panels by hand; and if using an end stapler that is made for that purpose, it is two operations to each end of each box. It takes two men to fold the alternate cleated blank around the pre-cleated ends, because all four sections must be brought into their relative positions, and at the same time each end section with the side cleats attached must be interlocked with the cleats of the sections that are fastened to the side sheets of the blank, and one man is unable to handle this operation at both ends of the box at the same time. Explaining more fully why I say four operations are required for stapling the previously uncleated sections of the alternate cleated blank to the cleats that are pre-attached to the ends: We have two cleats at each end of the so-called alternate cleat box that must be attached to the side sheets, and two of these cleats are on opposite sides of the box, and the box must be turned over in order to staple each opposite side, and the same is true with the opposite end of the box. The box must be turned end for end to staple the second end and also to be turned over to staple cleats on the opposite side of the box.

The operation of using an end stapler to attach the ends to the eight-cleated blank is to staple the end panels to the side cleats by one operation of a line of staples that circles the inside of this box. Altogether one stapling operation [fol. 83] at each end of each box is required for attaching the ends to the eight-cleated blank.

It would be practically impossible to drive by hand the staples 11 shown in Plaintiffs' Exhibit 13. Staples of lengths of seven-eighths inch, made from 16-gauge wire, will not stand to be driven in hard woods; and if the staples are of shorter lengths they are of no value. Stiffer staples of greater diameter of wire could be used, so that they could be driven by hammer, but very often would split the cleats. If a manufacturer of an alternate cleated blank shipped the alternate cleated blanks in the flat to his customers, it would not be a practical commercial operation for the customer to finish the box and to drive the staples 11, shown in Plaintiffs' Exhibit 13, by hand operation. Under those circumstances, the customer would have to

drive nails through the side sheets and into the cleats that have been pre-fastened to the end panel, or else he would have to have an end stapler built for that purpose.

Nails serving as substitutes for the staples 11, shown in Plaintiffs' Exhibit 13, would have much less strength in holding power. If the manufacturer of an eight-cleated blank ships the blanks in the flat to his customers it would be practical for the customer to fold the blanks, introduce the ends, fasten them adequately in place by hand operation alone. I have observed commercial practice like what I have just described. In a great portion of the eight-cleated blanks made, the ends are put in by hand.

Q. 589. According to a stipulation already of record in this suit, the defendant, Saranac Automatic Machine Corporation, has leased their machines and licensed the use thereof for the manufacture of wirebound box-blanks to Marion Handle & Box Company of Marion, Indiana. State whether or not you have recently visited the wirebound box shop of that company at Marion, Indiana.

A. I have, May 6, 1925.

Explaining the circumstances of that visit: I was driven in a car from Indianapolis to Marion by a Mr. Plummer. Mr. Plummer is superintendent of the Indianapolis Wirebound Box Company, a licensee of the plaintiff 4-One Box Machine Makers, and we went directly to the Marion Handle & Box Company's plant at Marion, Indiana. Mr. Plummer made himself known to a Mr. Lyons in the office and introduced me to Mr. Lyons. He asked Mr. Lyons if we might see their Saranac box-blank machine, and he directed us to go to the box factory and ask for Mr. John Redman, [fol. 84] who was then in charge as foreman of the box department. I had known Mr. Redman before. He at one time was employed by the Indianapolis Wirebound Box Company at Indianapolis, Indiana, and also at the Embry Wirebound Box Company at Louisville, Ky. I had installed machines in the plants of these two companies and serviced their boxes, and called on them many times; they were licensees of these plaintiffs. I had opportunity to examine wirebound box-blank machines at the plant of the Marion Handle & Box Company. I saw one wirebound box-blank machine there. Mr. Redman, Mr. Plummer and a Mr. Serviss, were present when I saw that machine. I got

close enough to the wirebound box-blank machine at the Marion Handle & Box Company plant to observe its working parts and to put my hands on same. I had means of identifying that machine that I saw at the Marion Handle & Box Company plant by my familiarity with the Saranac machines, and also by the name-plate, which said "Property of the Saranac Automatic Machine Corporation." There were no other wirebound box-blank machines in the shop of the Marion Handle & Box Company.

Calling this Saranac machine that I saw at the Marion Handle & Box Company on May 6, 1925, the "Marion machine," this Marion machine in detail was the same as I described the machine at the Conneaut Can Company. The Marion machine was identical as to its work-holding parts, etc., with those shown in the drawings, Plaintiffs' Exhibit No. 8 as I have already described, with the exception of Fig. 2, at 35, where the cleat positioning finger was not milled away on the Marion machine.

I can and do produce a spacer block like the spacer block I saw on the Marion machine.

By Mr. Janney: The spacer block just produced by the witness is offered in evidence as Plaintiffs' Exhibit No. 14.

This projecting part on this spacer block, Exhibit 14, the lug that projects out from one side of the block, is the cleat positioning finger. This fin part projecting from the top of the block is a spacer block fin. This block, Plaintiffs' Exhibit 14, is exactly the same as the block shown in Figure 2 on Plaintiffs' Exhibit No. 8, with the exception that this Plaintiffs' Exhibit 14 is a left block, and the Figure 2 on Plaintiffs' Exhibit 8 is a right block, and the cleat posi-[fol. 85] tioning finger on the left block is not milled away at 35, as shown in Figure 2 on Plaintiffs' Exhibit 8.

I can and do produce a block having no cleat positioning finger, as I observed it on the Marion machine.

By Mr. Janney: The block which is produced by the witness is offered in evidence as Plaintiffs' Exhibit No. 15.

This block, Plainfiffs' Exhibit 15, is just the same as the block in Figure 3, on Plaintiffs' Exhibit 8, with the exception that the block, Plaintiffs' Exhibit 15, is a left block and has no cam surface 10 as shown in Figure 3 of Plaintiffs' Exhibit 8.

I did not see the Marion machine in operation. The spacer blocks were set up on the chain at the Marion machine when I saw it. The Marion machine as I saw it had a device such as the so-called clincher block indicated at 36 on Plaintiffs' Exhibit 8. I examined that so-called clincher block on the Marion machine very closely on my second visit to the Marion Handle & Box factory. The first time I was at the Marion plant was on May 6, 1925; the second time was May 15, 1925. I made this second visit to the Marion plant for the sole purpose of examining that clincher block. At the time of my second visit to the Marion plant I had my hand on the clincher block, and looked it over thoroughly. Describing just what I observed on the Marion machine with reference to the clincher block: The clincher block is made from a piece of metal, approximately eight inches long and seven-eighths inch in cross-section. The rear end of this piece of metal is pivoted to the frame of the machine just outside the outer walls of the guideways, one on each guideway. The front or loose end of this clincher block was curved toward the guideways, and the sections of the guideways were cut away to receive the curved end of this clincher block and the curved end of this clincher block would be in the path of the cleats. I have said that the clincher block at one end was pivoted to the frame of the machine. The direction of that pivot was vertical, and the clincher block moved in a horizontal plane on that pivot. The curved end of the clincher block was held in the pathway of the cleats by coil spring, which was mounted to the frame of the machine by a stud, and to the clincher block by a second stud. This clincher block on the Marion machine was not connected in any way whatever with any other part of the mechanism of the machine. [fol. 86]

The stud on the clincher block to which the spring was attached was about halfway between the pivoted end of the clincher block and the curved end of the clincher block. The curved end of the clincher block was not held in the path of the cleat in any way except by the spring. With reference to the relation of the cleat in the channel-shaped guideway to this clincher block on the Marion machine: there was a cleat in this guideway, as I observed it, back of the curved end of the clincher block. In back of that

cleat there was a spacer block, with a cleat-positioning finger injecting into the guideway. I was curious to know just the amount of tension that spring had to hold that clincher block in the pathway of the cleats, and I took the cleat that was in the channel and pushed it forward, tongue first, until the tongue engaged with the curved end of the clincher block, and then pushed it forward and found it was necessary to push it forward with a jam in order to force the curved end of the clincher block in an outward position to let the cleats pass. I pushed that cleat along in the channel and up against the clincher block by hand. As I pushed that cleat forward in the channel of the Marion machine, there was no resistance there to the movement of the cleat before the front end of the cleat contacted with th curved end of the clincher. Then when the front end of the cleat contacted with the clincher block, I observed, with reference to the ease of movement of the cleat forward, it hardly moved at all. It stopped at that position when the front end of the cleat engaged the curved end of the clincher block. I succeeded in moving the cleat further forward by jamming it forward with my hands. I forced the cleat forward by hand, after its front end had contacted with the curved end of the clincher block, approximately ten inches. After the front end of the cleat had passed the clincher block, the curved end of the clincher block then was pressed against the outer wall of the cleat by the tension in the spring. As to the effect that had upon the ease of the forward movement of the cleat, it caused friction between the inner side of the cleat and the inner wall of the channel; it still took extra exertion to push that cleat forward. While the curved end of the clincher block was in contact with the side of the cleat, the spring held the clincher block in that position. While the curved end of the clincher block was thus held by its spring [fol. 87] against the side of the cleat, it would not have been possible for the vibration or jar of the machine to have moved the cleat endwise in the channel.

Q. 639. If you had been pushing the cleat at considerable speed endwise through the channel until the curved end of the clincher block engaged the sides of the cleat and had then suddenly let go of the cleat, would the momentum of the cleat have carried it further forward in spite of the

engagement of the side of the cleat by the curved end of the clincher block?

A. It would not. Because the tension on the spring was too stiff, and would overcome any speed of a cleat in the guideway. When I was moving the cleat forward in the guideway on the Marion machine, and when I forcibly touched the front end of the cleat against the curved end of the clincher block, the clincher block moved in an outward position.

I can and do produce a drawing showing what I observed with reference to the clincher block of the Marion machine on May 15, 1925.

By Mr. Janney: The witness produces a drawing already referred to by him and marked Plaintiffs' Exhibit 9, for identification.

[fol. 871] Plaintiffs' Exhibit No. 9, Drawing of Clincher Block on Defendant's Machine omitted; printed side page 68 ante.

In this drawing, Exhibit 9, Fig. 1 is a plan view of the right channel, showing the clincher block mounted on the machine at the Marion Handle & Box Company. That part 36 in Figure 1 is a clincher block. The part is dotted lines 39 is a spring. The part 40 is the curved end of the clincher block. And the part 41 is a cleat. This arrow marked X shows the direction of travel of the cleat in the channel. The part marked 42 is the tongue of the cleat. The part marked 43 is a spacer block. The part marked 44 is the cleat positioning finger of the spacer block 43. On the cleat positioning finger 44, as I observed it on the Marion machine, it did not have the cut-away recess 35. The dotted line just beneath the cut-away portion 35 in Figure 1 shows the block as it was on the Marion machine without that portion cut away. The part 45 is the outer wall of the guide-way or channel. The part 46 is the inner wall of the guide-way or channel. The part 47 is the portion of the part 45 that was cut away to allow the curved end of the clincher block 36 to stand in the path of the cleats. That Figure 2 on Plaintiffs' Exhibit No. 9 is a cross-section of plan 1, at line 2-2. In Figures 1 and 2, this part marked 50 is the stud that

carries the spring marked 39. The stud 50 is mounted on [fol. 88] the clincher block marked 36. The part marked 51 in Figures 1 and 2 is the stud that carries the spring mounted on frame of the machine. The effect of that spring 39, mounted as I have described here, is to hold the curved end of the clincher block 36 in the path of the cleats. That Figure 3 on Plaintiffs' Exhibit No. 9 is a plan view of a section of the right guide-way and clincher block. Figure 3 differs from Figure 1 in relation to the cleat in the channel and the curved end of the clincher block. The cleat as shown in Figure 3 has been moved forward until the curved end of the clincher block has contacted with the shoulder at the base of the tongue of the cleat. The reference numerals on Figure 3 are just the same as the reference numerals on Figures 1 and 2 of Plaintiffs' Exhibit 9. Figure 4 on Plaintiffs' Exhibit 9 is a plan view of the right channel, showing the channel and the clincher block. Figure 4 differs from Figures 1 and 3 in that the cleat is advanced forward farther than it is in Figure 3. As to the relationship between the cleat and the clincher block in Figure 4, the curved end of the clincher block is pressing against the outside surface of the cleat. The reference numerals on this Figure 4 are just the same as the reference numerals on Figures 1, 2 and 3. This clincher block 36 and its various parts, as shown in Plaintiffs' Exhibit 9, did not have any connection with any other part of the machine not shown in Plaintiffs' Exhibit 9. There were two clincher blocks on the Marion machine like that shown in Plaintiffs' Exhibit 9, one on the outside of each channel.

I did not see the Marion machine in routine operation under power, and I did not observe the clincher block of the Marion machine in actual operation under usual conditions of production. I have seen another machine in regular operation having a clincher block like that shown in Plaintiffs' Exhibit 9, at Maxwell Brothers in Chicago, on May 19, 1925. That was a Saranac machine that I saw at the Maxwell Company's plant at that time. That Saranac machine that I saw at the Maxwell Company's plant was just the same in construction and workholding parts as the Saranac blank machine that I saw at the Marion Handle & Box Company's plant, with the excep-

tion that the cleat positioning finger at 35 was cut away in the rear on the machine at Maxwell's. The construction of the clincher block on the Maxwell machine was just the same as the construction shown in Plaintiffs' Exhibit 9.

Q. 681. I will ask you later to explain fully the opera- [fol. 89] tion of this so-called clincher block on the Maxwell machine as you observed it. First, however, I want to ask you whether you had any conversation at the Marion Handle & Box Company's plants on either of your visits there regarding the kind of blanks that they were equipped to make on the wirebound box-blank machine that you observed there?

A. I did, with Mr. Redman, who was foreman of the box department of that plant. Mr. Redman told me that they were equipped to make both the alternate cleat blank and the pre-cleated blank on their machine. He did not say whether or not they had ever made the pre-cleated blank at the Marion plant. I saw wirebound box blanks at the Marion plant, alternate cleated blanks. They were just the same as the alternate cleated blanks which I observed at the Conneaut Can Company plant, as I have already stated, as I have described it. I saw finished wirebound boxes at the Marion plant; they were identical with the box shown in Plaintiffs' Exhibit 13 [ante, p. 80]. The Marion machine, as I observed it, and with the set-up of spacer blocks which I saw on the machine, could be used in making alternate cleated blanks. The Marion machine, as I observed it, could be used in making eight-cleated blanks including two pre-cleated sections, providing the number 35 in Figure 1 of Plaintiffs' Exhibit 9 was milled away. Except for that recess or cut-away part 35 on the cleat positioning finger as shown in Figure 1 of Plaintiffs' Exhibit 9, the Marion machine was just the same as the machine that I saw in operation and making the eight-cleated blanks including two pre-cleated sections at the Gondert & Lienesch plants as I have described.

In the completed boxes that I saw at the Marion plant, I observed that the boxes were lap-corner boxes. The lapping of the corners was just the same as that shown in Plaintiffs' Exhibit 13. I observed separate ends for assembly with the box blanks at the Marion plant; those

ends were end panels with a cleat stapled to each end of each panel. I observed the relationship between the lengths of the cleats that were attached to the box ends at the Marion plant, and the widths of the uncleated side sheets in the alternate cleated blanks only in the box that was made up. The width of the sheets with the cleats omitted was approximately one-half an inch wider than the length of the cleats that were pre-stapled to the box ends. In the made-up box, the result of that, approximately, at its greater width of the sheets was, on the sheets with the cleats omitted, there was one-quarter inch margins protruding beyond the cleat ends.

[Tol. 90] Q. 702. According to a stipulation already of record in this suit, the defendant, Saranac Automatic Machine Corporation, has leased machines and licensed the use thereof for the manufacture of wirebound box blanks to St. Louis Box Factory, of St. Louis, Missouri. Please state whether or not you have recently visited the wirebound box plant of the St. Louis Box Factory.

A. I did, on May 8, 1925.

Explaining the circumstances of my visit: I called at the St. Louis Box Factory during the noon hour on May 8, 1925, and met Mr. Green of the office. I asked Mr. Green if I might see their Saranac box-blank machine. He told me that it was not in operation and had not been in operation for several weeks, but if I wanted to see it I could cross the driveway into the box shop and look at this machine, which I did. I had means of identifying the machine that I saw by my familiarity with the Saranac machines, and, also the name-plate. On the name-plate was "Property of the Saranac Automatic Machine Corporaton." I got close enough to that machine in the St. Louis plant to lay my hands on it.

For convenience, I will refer to this machine that I saw on May 8, 1925, at the St. Louis Box Factory as the "St. Louis machine." This St. Louis machine was identical with the machine which I have already described and which I saw at the Conneaut Can Company, with the exception of the spacer block. I do not remember if the spacer block had the rear side of the cleat positioning finger cut away or not. The St. Louis machine was just the same as the Saranac machine which I saw at the Gon-

dert & Liesnesch plant as I have described it, with the same exception. The St. Louis machine was just the same as the machine that I saw at the H. R. Gibbons Box Company as I have described it. The St. Louis machine was just the same as the machine that I saw at the Marion Handle & Box Company.

Q. 713. Did you have any conversation with anybody at the St. Louis plant with reference to the character of blanks they were equipped to make?

A. I did.

I met a man in their blank machine shop who told me that he was the operator of this machine. I asked him the kind of blanks he made. He said he was equipped to make both the alternate cleated blank and the pre-cleated blank.

There were spacer blocks set up in the St. Louis machine when I saw it. The set-up of spacer blocks on that machine was just the same as that shown in Plaintiffs' [fol. 91] Exhibit 8 [ante, p. 65]. As I observed that St. Louis machine, it could be used for making the alternate cleated blank. As I observed the St. Louis machine, it could be used for making the eight-cleated blank with two pre-cleated sections, providing the rear faces of the cleat positioning fingers were milled away, which I don't remember.

Q. 719. State whether or not the St. Louis machine had on it anything similar to the so-called clincher block 36 shown in Plaintiff's Exhibit No. 9 [ante, p. 68].

A. Just the same; one on each channel and there were two channels.

Q. 722. According to a stipulation already of record in this suit, the defendant, Saranac Automatic Machine Corporation, has leased machines and licensed the use thereof for the manufacture of wirebound box blanks to Maxwell Brothers, Inc., of Chicago, Illinois. State whether or not you have recently visited the wirebound box shop of Maxwell Brothers, Inc., in Chicago.

A. I did, May 19, 1925.

I saw a Mr. Maxwell who took me through the plant and showed me the operation of these machine. I saw three wirebound box-blank machines at the Maxwell plant. I had means of identifying those machines by my familiarity with the Saranac machines and by a name-plate that I noticed on

one of the machines. On that name-plate was "Property of the Saranac Automatic Machine Corporation." The construction of that machine on which I observed the name-plate was exactly the same as the construction of the other two machines. I failed to observe whether there were any name-plates on the other two machines. I don't know whether there were any name-plates on those two machines or not. I didn't look.

For convenience I will refer to the blank machines which I saw at Maxwell Brothers' plant on May 19 1925, as the "Maxwell machines." The Maxwell machines were identical in construction with the one I have already described at the Conneaut Can Company. The Maxwell machines were just the same as to workholding devices and other parts with what is shown in Plaintiffs' Exhibit 8 [ante, p. 65], with the exception that on two of these machines I did not notice if the rear faces of the cleat positioning fingers were milled away as indicated at 35 in Fig. 2 of Plaintiffs' Exhibit 8.

As to the third of these Maxwell machines, I noticed that machine, and the rear face of the cleat positioning finger was milled away. The set-up of spacer blocks, chains and [fol. 92] channels on this last mentioned Maxwell machine, and also the spacer blocks themselves, were just the same as what is shown on Plaintiff's Exhibit 8. I saw three of the Maxwell machines in operation. When I saw them in operation two of the machines were making alternate cleated blanks and one machine was making pre-cleated blanks. On the machine that was making pre-cleated blanks, there were eight cleats on the blanks produced on that machine. I saw individual pre-cleated blank sections as they were introduced into the blank machine at the Maxwell plant which was making the eight-cleated blank. Describing those pre-cleated sections including the relationship of the cleat ends to the sheet edges: The side sheets of the pre-cleated section had a margin of $\frac{1}{4}$ inch beyond each cleat end. Two cleats were stapled to each section one cleat at each end of each section with a margin of $\frac{1}{4}$ inch on the sheet that protruded beyond each cleat end.

The set-up of channels chains and spacer blocks which I saw on the Maxwell machine making the eight-cleated blanks was just the same as the mechanical set-up of these

parts shown in Plaintiffs' Exhibit 12. The set-up of the blank materials on the Maxwell machine which I saw making the eight-cleated blanks was just the same as the set-up of the blank materials shown in Plaintiffs' Exhibit 12 [ante, p. 79]. On the two Maxwell machines which I saw making the alternate cleated blank the set-up of workholding devices including the spacer blocks and the set-up of blank materials was just the same as the set-up as shown in Plaintiffs' Exhibit No. 8, illustrating what I observed at the Conneaut Can Company plant.

The set-up of workholding chains and spacer blocks on the Maxwell machine which I saw making the eight-cleated blanks was just the same as the set-up of chains and spacer blocks which I saw on the Maxwell machines making the alternate cleated blanks.

I observed finished blanks produced on the Maxwell machine which was making the eight-cleated blank. Those blanks had eight cleats. Those eight-cleated blanks produced on the Maxwell machine were just the same as the blanks made on the 4-One Box Machine Makers blank machines by plaintiff' licensees, with the exception that on the pre-cleated sections which were the first and third, there were staples under the binding wire that held the cleats to the sheets before they were placed in the blank machine, that is, on the Maxwell blanks.

On the eight-cleated blanks that I saw produced on the Maxwell machine, as to the relationship between the cleat [fol. 93] lengths and the sheet widths, on the pre-cleated sections, which were the first and third sections the sheet material protruded one-fourth of an inch beyond each cleat end. On the second and fourth sections the width of the sheets were the exact length of the cleats.

In folding those eight-cleated blanks which I saw made on the Maxwell machine, overlap corners would be formed in the finished box. The sheets of the first and third sections would overlap the sheets of the second and fourth sections.

As I observed the method of making the eight-cleated blank on the Maxwell machine, that method was just the same as the method of making an eight-cleated blank, on the Gondert & Lienesch machine, as I have already described

it. I saw alternate cleated blanks produced on the two Maxwell machines which I saw in operation making the alternate cleated blanks. Those alternate cleated blanks made on the Maxwell machine were just the same as the alternate cleated blanks that I observed in the Conneaut Can Company's plant. They were just the same as the alternate cleated blanks that I observed at the Gondert & Lieneseh plant. They were just the same as the alternate cleated blanks which I saw at the Marion Handle & Box Company plant. They were just the same as the alternate cleated blanks that I saw at the H. R. Gibbons Box Company plant.

At the Maxwell plant I saw alternate cleated boxes made up. They were just the same as the box shown in Plaintiffs' Exhibit 13 [ante, p. 80].

On the Maxwell machines, I observed a device similar to the so-called clincher block 36 shown in Plaintiffs' Exhibit 8 [ante, p. 65]. The clincher blocks on all three of those machines were just the same. The clincher blocks on the Maxwell machines were just the same in construction and operation as what is shown on Plaintiffs' Exhibit 8.

In the operation of these machines, each cleat would engage the curved end of the clincher block and be held in that position until they would be forcibly pushed past the curved end of this cylinder [clincher] block. The cleat positioning finger on the spacer block would forcibly push the cleat past the clincher block.

Q. 766. Can you point out on any of these drawings the cleat positioning finger you have reference to when you say that it would forcibly push the cleat past the clincher block. [fol. 94] A. I can. The cleat positioning finger 6 in Fig. 2 on Plaintiffs' Exhibit 8.

Q. 767. I have understood you to say that where pre-cleated sections were present on the Maxwell blank machine there was no cleat positioning finger 6 at the rear of either cleat which was pre-attached to the sheet of that section; is that correct?

A. That is correct.

On that machine the fins on the second pair of spacer blocks and the fourth pair of spacer blocks would push a cleat on one of these pre-cleated sections forcibly past the clincher block. Those particular fins are indicated by numerals 13 and 14, 17 and 18 on Plaintiffs' Exhibit 12.

Those fins 13 and 14, for example, would force the cleats of the pre-cleated sections past the clincher block by forcing the sheet forward, to which has been pre-stapled the cleats of the first section. On Plaintiffs' Exhibit 12, supposing that the first section of the blank was not wide enough to fit snugly between the first pair of fins 11 and 12 and the second pair of fins 13 and 14, and supposing further that the rear edge of the sheet of the first section was spaced away from the fins 13 and 14 at the time the cleats of the first section first engaged the clincher blocks, the engagement of the clincher blocks with the pre-attached cleats of the first section would hold the cleats in the channels until the cleats were forced forward by the fins of spacer blocks 13 and 14 against the rear edge of the sheet of the first section. Still referring to the first and pre-cleated section of the blank shown in Plaintiffs' Exhibit 12, after the fins of the spacer blocks 13 and 14 had forced the front ends of the cleats of the first section past the curved end of the clincher block 36, the curved end of the clincher block would press against the outer wall of the cleat and hold the sheet of the first section against the fins marked 13 and 14 at the rear of the first section.

[fol. 94½] Plaintiffs' Exhibit No. 12, Drawing of Defendant's Machine at Gondert & Lienesch Plant, Showing Assembled Blank and Two Pre-cleated Sections omitted: printed side page 79 ante.

In the step-by-step movement of the chains on the Maxwell machine when the chain stops suddenly, there would be a tendency of the first and pre-cleated section, under momentum, to continue moving so as to space its rear edge away from the fins of the spacer blocks 13 and 14, but when the curved end of the clincher block was held against the outer faces of the cleats by tension spring that would hold the rear edge of the sheet of the first section firm against the fins 13 and 14. On the Maxwell machine which I saw [fol. 95] making the eight-cleated blanks, as to co-action between the loose cleats of the second and fourth sections and the clincher blocks shown in Plaintiffs' Exhibit 12,—when the second section was advanced until the front end of the cleat engaged with the curved end of the clincher block, it would hold the cleats of the second section until

forced forward past this clincher block by the cleat-positioning fingers on the spacer blocks 15 and 16 at the rear of this cleat.

That same statement applies just the same to the co-action between the loose cleats of the fourth section and the clincher blocks 36.

On the Maxwell machines which I saw making the alternate cleated blanks, the co-action between the cleats on the alternate sections and the clincher blocks was just the same as the second and fourth sections that I have just described.

Summarizing briefly the principal function performed by these clincher blocks illustrated in Plaintiffs' Exhibits 8, 9 and 12, as I observed their operation on the Maxwell machines, for instance: The curved end of the clincher block engaged each and every cleat in the channels and held them in that position until the cleats were forced by the curved end of the clincher block, by a cleat positioning mechanism at the rear of the cleats, and also to put pressure against the outside surface of each cleat and hold the rear end of each cleat against its cleat-positioning mechanism at the rear end. On the Maxwell machine which I saw making the eight-cleated blank, the clincher blocks did not perform any function at all besides those I have just described.

In making the alternate cleated blank, as I observed it on the Maxwell and other machines, the clincher blocks shown in Plaintiff's Exhibit 9 did perform other functions in addition to those I have already described. In the first and third sections of an alternate cleated blank, the cleats in those sections are omitted. The curved end of the clincher block being held in the path of the cleat, while the stapling is being done over the first and third sections, serves to clinch the staples that are driven over the binding wires and through the sheets and clinched by the curved end of this clincher block on the bottom side of the sheets.

In making an alternate cleated blank as I observed it on the Maxwell and other Saranac machines, the staples were of different sizes. The staples that were driven straddle of the wire over the sections with the cleats omitted were made from 17-gauge stapling wire. The legs were [fol. 96] approximately $\frac{1}{2}$ inch long. And the staples that were driven over the binding wires and through the sheets and into the cleats on the cleated sections were made of 16-guage wire and the legs were $\frac{7}{8}$ inches long.

On the Saranac machines which I saw at the Maxwell plant and elsewhere, when they were used for making alternate cleated blanks, provision was made on the machines for changing the stapling operation from driving one size of staple to driving another size of staple, by a double stitcher. This stitcher was so designed that it had two staple formers and two staple drivers, of which one of these staple formers was designed to handle wire of 16-guage and form staples with legs $\frac{7}{8}$ inches long; and the other former was designed to handle wire of 17-gauge to make and drive staples whose legs were approximately $\frac{1}{2}$ inch long. Those double staplers were located on the Maxwell and other machines which I saw making the alternate cleated blanks, directly over the rows of cleats.

Explaining how those double stitchers would act in making an alternate cleated blank: As the blank passed under the stapling heads, the section of the blank with the cleats omitted, the staples were formed and driven by the former that was designed to use 17-gauge wire to make the short-legged staple. And as the cleated section passed under the stapling points, the former that handled 16-gauge wire was in operation and drove the staples made from the 16-gauge wire whose legs were $\frac{7}{8}$ inches long, straddle of the binding wire, through the sheets and into the cleats. I am not sure how the driving of the long staples and the driving of the short staples alternated in the operation of the Saranac machines in making the alternate cleated blank. I think they alternated by the use of the cams 8 and 10 in Figs. 2 and 3 of Plaintiffs' Exhibit 8.

Referring to Plaintiffs' Exhibit 9 and Fig. 1 thereof, the point at which the small staples were driven over the outside binding wire was directly over the curved end of the clincher block indicated by Z.

[fol. 96½] Plaintiffs' Exhibit No. 9, Drawing of Clincher Block on Defendant's Machine, omitted; printed side page 68 ante.

As I observed the operation of the Maxwell machines, when a cleat 41 had arrived at the position shown in Fig. 1 of Plaintiffs' Exhibit 9, the advance end of that cleat had not arrived at the position to receive the first staple. As I observed the operation of the Maxwell machine in making

the pre-cleated type of blank, when the cleat had arrived at the position shown in Fig. 3 of Plaintiffs' Exhibit 9, the ad- [fol. 97] vance end of the cleat might occasionally be at the position to drive the first staple at that location if the cleat-positioning finger was at the end of its step-by-step motion—the front end of the cleat might be in a position to receive the first staple. As I observed the operation of the Maxwell and other Saranac blank machines, no staple could be driven into a cleat prior to the time some part of the advance end of the cleat had engaged with the so-called clincher block.

Q. 790. According to a stipulation already of record in this suit, the defendant Saranac Automatic Machine Corporation has leased machines and licensed the use thereof for the manufacture of wirebound box-blanks to White Box Factory, Inc., at Columbia, Mississippi. State whether or not you have recently visited this White Box Factory at Columbia, Mississippi.

A. I did, on May 21, 1925.

While in Columbia, Mississippi, I went out to the wirebound box factory of the White Company and met the foreman of the wirebound box department and had a talk with him. I entered the wirebound box shop at the White Box Factory and saw there three Saranac box-blank machines. I had means of identifying those machines by my familiarity with their machines and I identified one of them by a name plate. On that name plate was "Property of Saranac Automatic Machine Corporation. Serial No. 147." I do not know whether there were name plates on the other two machines. I examined very closely all three of those Saranac machines at the White factory.

Q. 802. I want to refer to those three machines that you observed at the White factory in Columbia, Mississippi, on May 21, 1925, as the "White machines." How did those three White machines compare with each other?

A. There were two alike and one of them different.

I will refer to the one White machine which was different from the other two as the "First White machine" and I will refer to the other two that were alike as the "Second and Third White machines."

Q. 804. As to the second and third White machines, how did they compare with each other as to their chains, spacer

blocks and workholding devices generally [and] with the Saranac machine you have already described as observed by you at the Conneaut Can Company.

A. Just the same.

The construction and operation of the chains, spacer blocks and workholding devices generally on the second and third White machines would be just the same as what is [fol. 98] shown in Plaintiffs' Exhibit No. 8 [ante, p. 65].

I did not witness any operation of the second and third White machines. I did observe the set-up of spacer blocks on the second and third White machines. This was just the same as what is shown on Plaintiffs' Exhibit 8. There were no box parts on the second and third White machines. As the second and third White machines were set up as I observed them, both alternate cleated blanks and pre-cleated blanks could have been made thereon. And the pre-cleated blank I have just referred to would have had eight cleats. On the second and third White machines as I observed them, they were equipped with the double stitchers for making the two sizes of staples as I have already described them.

The second and third White machines as I observed them had devices similar to the clincher block 36 shown in Plaintiffs' Exhibit 9 [ante, p. 68]. The clincher blocks on the second and third White machines were just the same in construction and mode of operation with what is shown on Plaintiffs' Exhibit 9.

Q. 815. As to the first White machine which you say was different from the other two, in what respects was it different?

A. The guideways or channels were different. It carried single stitchers instead of double stitchers and the staple wire feed mechanism was different, and the clincher block as shown in Fig. 1 on Plaintiffs' Exhibit 9 was not installed on this machine.

The workholding chains of the first White machine were just the same as the workholding chains of the second and third White machines. The spacer blocks on the first White machine were just the same as the spacer blocks on the second and third White machines. The set-up of spacer blocks on the first White machine was just the same as the set-up of spacer blocks on the second and third White machines.

Q. 819. How did the outside staple forming and driving mechanism on the first White machine, for driving staples over the outside binding wires, compare with the corresponding staple forming and driving mechanism on the second and third White machines.

A. The staple forming and driving mechanism on the first White machine made only one size of staple. And the staple forming and driving mechanism on the second and [fol. 29] third White machines made two sizes of staples.

The staple made by the outside staple forming and driving mechanism on the first White machine was made from 16-gauge wire, 7/8 inches long. The double staple forming and driving mechanisms on the second and third White machines were just the same as the so-called double stitchers or double staple forming and driving mechanisms on the Maxwell machines which I have already described. On the first White machine there was no provision for driving over the outside binding wires short staples for part of the time and long staples for part of the time. On the first White machine there were no provisions for driving staples over the outside binding wires through uncleated side sheets and clinching those staples on the under side of the uncleated side sheets.

Q. 824. When I have referred in my question to the outside binding wires what have you understood me to mean?

A. The wires directly over the rows of cleats.

On the first White machine there was no clincher block for performing the clinching operation similar to that which I explained in connection with the block 36 shown in Plaintiffs' Exhibit 9 [ante, p. 85]. On the first White machine, to perform a cleat-holding function similar to that performed by the clincher block 36 shown in Plaintiffs' Exhibit 9, there was a detent in the inner wall of the channels or guideways located exactly opposite from where the so-called clincher block was located from the outside wall of the channel as indicated in 36 in Fig. 1, Plaintiffs' Exhibit 9. I don't know as I am sure about how those detents were mounted in the first White machine, but there was one loose end. The forward end of that detent was loose and pulled into the path of the cleat by a spring. By watching the machine in operation, the only time that this detent was visible to me was at the time when the space between blanks passed over that section of the channel. The gap

between blanks was approximately five inches. In that space between the blanks I could see the foremost end of that detent move inwardly in the path of the oncoming cleat. When the front end of the oncoming cleat reached the detent, it pressed the detent outward. From what I observed of the operation of the detent in the intervals between blanks on the first White machine, I can say as to the operation of that detent between one cleat and the next in the length of the blank, as I observed it, the detent would move inwardly between blanks in the path of the cleat, and the cleat being moved forward, the foremost end of the cleat [fol. 100] would engage with the detent, which would retard the movement of the cleat until the cleat was pressed forward by a cleat positioning means at the rear of the cleat. This detent also would put pressure against the inside face of the cleat, pressing the cleat against the outside wall of the channel, causing friction and holding the rear end of this cleat against the cleat positioning mechanism at the rear of the cleat. There was one of those detents on each channel on the first White machine, and there were two channels.

Q. 834. Now, after the first pair of cleats in a blank had passed completely by the detents, what would then happen to the detents?

A. I couldn't say as to my observation of these detents because at that stage the detent was covered by the sheet material; but I know that this detent was held in the path of the cleats by a tension spring unless it were forced outward by the travel of the cleat. This detent would serve the same purpose with the cleat on the inside of the channel as the so-called clincher block mounted on the outside of the channel except to be used in clinching staples.

Q. 835. State whether or not the detents you saw on the first White machine would have any effect upon cleats of the second, third and fourth sections of the blank.

A. They would have.

The effect of the detents upon the cleats of the second, third and fourth sections would be just the same as the effect I have already described of the detents on the cleats of the first section. The function of the detents as I observed them on the first White machine was just the same as the functions of the clincher blocks as shown in Plaintiffs' Exhibit 9 and already described by me, in so far as relates

to the co-action of the detents and clincher blocks with the cleats, with the exception that with the clincher block mounted on the outside of the channel and with its pressure against the outside face of the cleat, it would force the cleat against the inside wall of the channel; while on the channel in the first White machine, it would have its pressure against the inner face of the cleat, forcing the cleat outward against the outside wall of the channel.

I can and do produce a drawing illustrating what I observed with reference to those detents on the first White machine.

[fol. 101] By Mr. Janney: The drawing just produced by the witness is marked Plaintiffs' Exhibit 16 for identification.

(Here follows Plaintiffs' Exhibit No. 16, side folio 101½)

In Plaintiffs' Exhibit 16, this Fig. 1 is the plan view of a part of the right channel. Fig. 2 is a cross section of Fig. 1. In these figures the part marked 36 is the detent. The part marked 37 is the pivotal point of that detent. I couldn't see in the first White machine how one end of this detent was mounted, and, therefore, I was unable to make a drawing that was exactly like that machine, but this drawing was made to help explain the movement and action of this detent against the cleat.

Q. 844. To what extent did you observe this movement and action of the detent against the cleat which you propose to explain by reference to this drawing, Plaintiffs' Exhibit 16?

A. I watched this detent very carefully and watched the foremost end of this detent move outward and back in the path of the cleats.

The thing on Plaintiffs' Exhibit 16 marked 41 is cleat. The part marked 42 is the tongue of the cleat. The part marked 43 is spacer block. The part marked 44 is the cleat positioning finger of the spacer block 43. The part marked 45 is the outside wall of the channel. The part marked 46 is the inside wall of the channel. That place 47 is the section of the inner wall of the channel cut away to receive the detents. The part marked 50 is the arm that one end of the spring is mounted on. The part marked 51

FIG. 1.

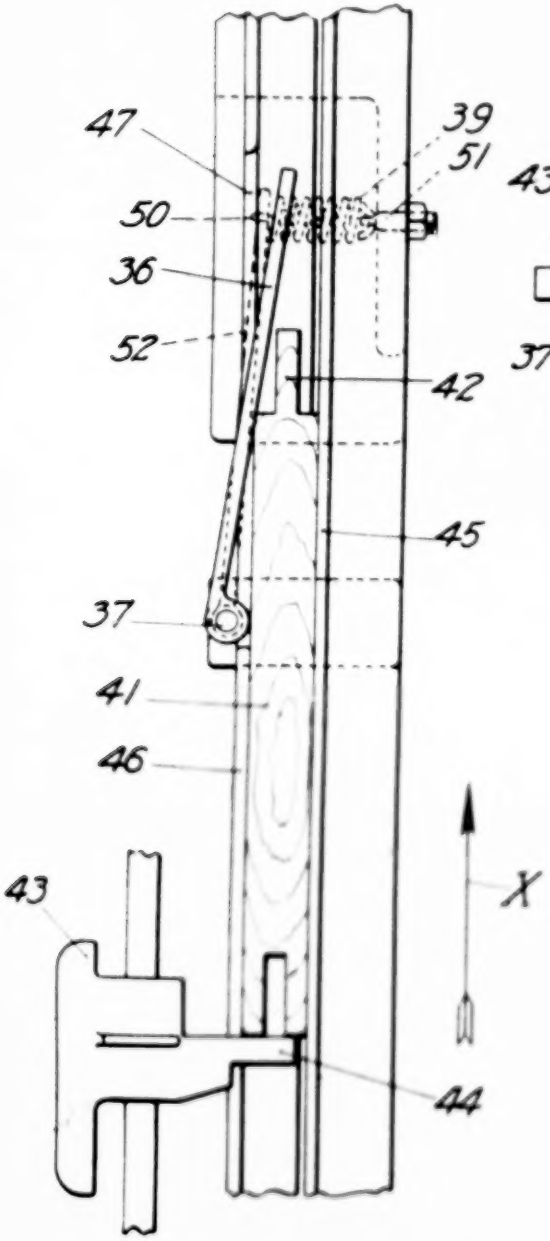
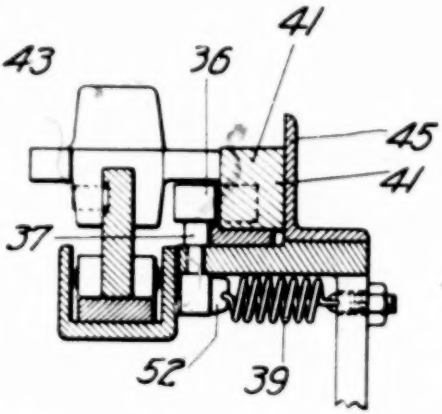



FIG. 2.




Plaintiffs' Exhibit No. 16, Drawing of Detent on "First White Machine."

is the adjusting nut at the opposite end of the spring. As to the relation between that end of the spring and the adjusting nut 51, that is the thing that the spring is connected to on the frame of the machine. The part shown in dotted lines in Fig. 1 and marked 50 is the spring. Explaining the relation of the end 50 of the spring to the detent 36: The end of the spring 50 is mounted on an arm, of which one end of this arm is fastened to the spring and the other end is fastened to the pivotal point 37, and the spring serves to hold the detent in the path of the cleat. This thing that I called the pivotal point 37 is a shaft on which on the upper end is mounted the detent and is made fast, and on the lower end is mounted the arm that carries the spring. The lower end projects under the bottom of the channel. I mean that the detent arm 36 and this lower arm marked 52 are both fixed on this shaft 37.

Q. 820. State whether or not the details of this arm 52, [illegible] engagement of the pivot 37 and the arm 52 is what you actually observed on the first White machine.

A. No, sir. I made that drawing so that I could more thoroughly explain the function of this detent.

The arrow marked N on Plaintiffs' Exhibit 16 is to show the forward movement of the cleats.

Q. 821. With this construction as you have described it by reference to Plaintiffs' Exhibit 16, explain how the illustrated detent 36 would operate as the cleat H advanced in the direction of the arrow N.

A. As the cleat H advanced it would force the detent out of the path of the cleat and also force the cleat against the outer wall of the channel.

The cleat would not move forward until it was forcibly pushed forward by the cleat positioning member at the rear end of the cleat.

Q. 822. As to the operation or action of the detent 36 which you have just described, to what extent, if any, was that a matter of actual observation by you on the first White machine?

A. It was a matter for actual observation at least while they were making [illegible].

In Plaintiffs' Exhibit 16, as the cleat H moved forward in the direction of the arrow N, the front end of the cleat would [illegible] the standing point before being engaged by the detent 36.

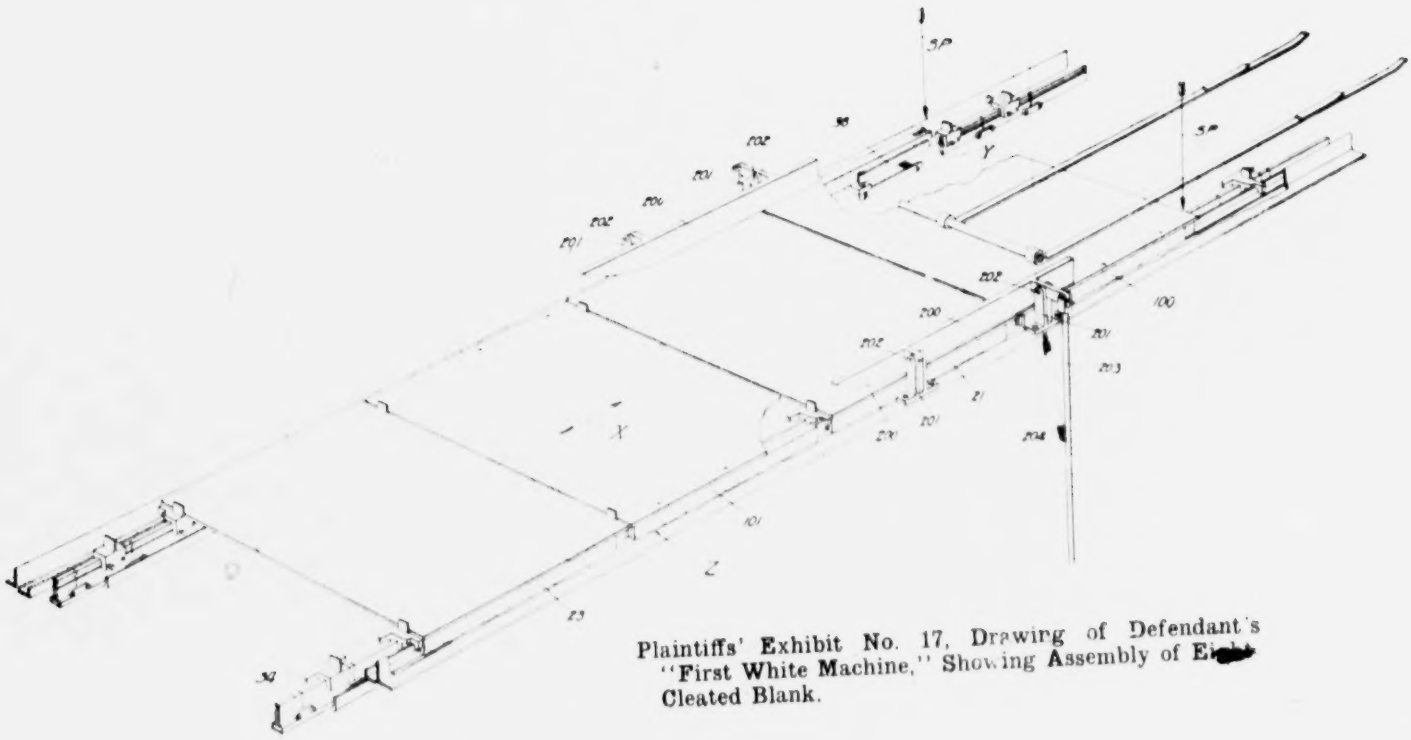
Q. 865. To make that perfectly clear, which would happen first, would the cleat arrive at the stapling point first or would the detent 36 engage the front end of the cleat first?

A. The detent would engage the front end of the cleat first.

This detent on the first White machine, as I have illustrated it in Plaintiffs' Exhibit 16, did not perform any function besides the action on the cleats which I have described. That detent 36 did not have any connection with any part of the machine other than what I have shown in Plaintiffs' Exhibit 16.

Again refering to Plaintiffs' Exhibit 16, if the cleat was being moved rapidly forward in the direction of the arrow X by the cleat positioning finger 44 at the rear end of the cleat, and if the chain and the spacer block 43 were suddenly stopped at the end of one of the step movements, the momentum of the cleat would not force its front end past the detent 36. After the cleat 41 in Plaintiffs' Exhibit 16 had moved say four or five inches further in the direction of the arrow X, from the position shown in Plaintiffs' Exhibit 16, the detent 36 would have pressure [fol. 103] against the inner surface of the cleat 41. That would hold the cleat against the outside wall and also against the cleat positioning member at the rear of the cleat. Under those circumstances if the spacer block 43 and the cleat positioning finger 44 were suddenly stopped, the momentum of the cleat 41 would not be sufficient to continue its movement. The pressure of the detent on the cleat would hold the cleat against the cleat positioning fingers at the rear of the cleat. After the advance end of the cleat had first engaged the detent 36, the engagement between the detent and the cleat would continue until the rear end of the cleat had passed the front end of the detent.

This first White machine as I observed it was not equipped to make the Saranac alternate cleated blank. To have equipped that first White machine to make the alternate cleated blank it would have been necessary to have had a clincher block in the path of the cleats and under the sheet sections where the cleats were omitted. It would also have to be equipped with double stitchers for forming and driving two sizes of staples and the staple wire-feed mechanism would have to be changed.



Plaintiffs' Exhibit No. 17, Drawing of Defendant's "First White Machine," Showing Assembly of Eight Cleated Blank.

I saw this first White machine in operation. An eight-cleated blank was being made upon it.

As to how that eight-cleated blank was made up in the assembly on the machine: In the first section the cleats were pre-cleated to the side sheets before it was assembled in the machine. The second section was loose cleats, and loose sheets placed in the machine. The third section was a pre-cleated section placed in the machine; and the fourth section was loose cleats and loose sheets placed in the machine. The set-up of box materials for the eight-cleated blank on the first White machine was just the same as the set-up of box materials for the eight-cleated or pre-cleated type of blank as I saw it at the Gondert & Lienesch plant as I have already described it. The set-up of blank materials for the eight-cleated blank as I saw it on the first White machine was just the same as the set-up of blank materials shown in Plaintiffs' Exhibit 12 [ante, p. 79].

I can and do produce a drawing illustrating what I observed with reference to this first White machine.

By Mr. Janney: The drawing just produced by the witness is marked Plaintiffs' Exhibit 17 for identification.

(Here follows Plaintiffs' Exhibit No. 17, side folio 103½)

In Plaintiffs' Exhibit 17 this arrow X is showing the direction of the movement of workholder. These two arrows [fol. 104] that have been marked S P are stapling points. This thing marked 36 is detent. There is a wavy line marked Z here. That shows the section of the outside wall of the channel broken away so that we can see the side view of the cleats. Shown in section here at Y is the section of the chain that carriers the spacer blocks and it is shown broken away so that we can see the back of it and observe the detent 36. This part marked 100 is cleat. The relation of that cleat 100 to the sheet of the first section is the sheet is pre-stapled to the cleat 100. 21 is cleat. The relation of that cleat to the sheet of the second section is a loose cleat and a loose sheet. This thing marked 101 is a cleat. That cleat is pre-cleated to the sheet of the third section. This thing marked 23 is cleat. The relation of that cleat 23 to the sheet of the fourth section is a loose cleat and a loose sheet.

Aside from the numerals that I have already referred to on this Plaintiffs' Exhibit 17, the remaining reference numerals on this exhibit are just the same as those numerals on Plaintiffs' Exhibit 12 [ante, p. 79].

These things marked 200 on Plaintiffs' Exhibit 17 are pressure bars. The purpose and effect of those pressure bars 200 is to hold the sheet material in the workholder. They are mounted one on each channel, on the outside of each channel. This thing marked 201 is the bracket that is fastened to the channel at one end and holds the pressure bar at the opposite end. This 202 is the pivotal point. The effect of that pivotal point on the pressure bars 200 is so you can raise the pressure bars off of the sheet sections. This thing 203 is connecting rod. That connects to a foot pedal on the floor. By depressing the foot pedal it will raise the pressure bars off the sheet material. This thing 204 is spring. It is mounted on the channel at one end and on the connecting rod at the other. The effect of that spring is to give extra pressure on the pressure bars in holding down the sheet material. I may say here that I am not sure as to the exact drawings of those pressure bars. I know that the pressure bars are there and by pressing the foot pedal it will raise them beyond the plane of the sheet material. The details shown in Plaintiffs' Exhibit 17 may be different from the details on the machine but the action is exactly the same.

The spacer blocks on this first White machine, those that had cleat positioning fingers, were just the same in construction as this sample spacer block Plaintiffs' Exhibit No. 7.

Returning to the second and third White machines, I did not see either one of them in operation.

[fol. 105] Q. 910. Did you observe the set-up of workholding devices on either the second or third White machines?

A. I observed the spacer blocks on the chains on the second and third White machines. That set-up, in general terms, was exactly the same as shown in Plaintiffs' Exhibit 17. With the set-up that I observed on the second and third White machines, either alternate cleated blanks or eight-cleated blanks could be made. I saw wire-

bound box blanks at the White factory, eight-cleated blanks. As to how those eight-cleated blanks were made up at the White factory: The first and third sections of those eight-cleated blanks were pre-cleated sections. The second and fourth sections were not pre-cleated but were fed into the blank machine as loose cleats and loose sheets. I did not see any alternate cleated blanks at the White factory.

I saw eight-cleated blanks produced by the first White machine. Those eight-cleated blanks produced by the first White machine were just the same as the standard eight-cleated blanks made by these plaintiffs' licensees, with the exception that on the pre-cleated sections the staples were under the binding wire that hold the sheets of the pre-cleated sections to the cleats; and that the tongues of one row of cleats was fed foremost under the stapling point and the grooves of the opposite row of cleats was fed foremost under the stapling point. This reversal of the cleats did not make any difference in the finished eight-cleated blanks.

I saw an apparatus for pre-cleating sections at the White factory. It was approximately of the same construction as their blank machine. This pre-cleating machine did not have any provision for applying binding wires to blank sections. I observed pre-cleated sections made on that machine. Describing one of them: The sheets of the pre-cleated sections protruded approximately $\frac{1}{4}$ of an inch beyond each cleat end.

Q. 926. What was the connection between the sheet and the cleats on one of these pre-cleated sections?

A. The sheets were stapled to the cleats.

There were no binding wires on those pre-cleated sections. After the pre-cleated sections had been made on the pre-cleating machine, they were then taken to the blank machine.

On the first White machine which I have illustrated in Plaintiffs' Exhibit No. 17 I observed the blanks that were produced on that machine. As to the relationship between the cleat ends and the sheet edges of those blanks produced on the first White machine, the sheets of the [fol. 106] first and third sections had a margin of approximately $\frac{1}{4}$ inch projecting beyond each cleat end. On the

second and fourth sections the width of the sheets was the length of the cleats. On these blanks that I saw produced on the first White machine, the first section of the blank was used at the top of the box. I know that because the second and fourth sections had advertising matter printed on them, and when facing the machine as to the travel of the chains, the printing on the second section would read from left to right, and the printing on the four section was upside down, or reversed from the second section. And due to my familiarity with the folding of wirebound box blanks I know that the printed sections of this blank would be the sides of the box, of which the fourth section would be the front of the box and the second section the rear of the box, and the first section the top of the box, with the third section the bottom of the box. And if the bottom of this box was placed on the floor, you facing the box, the fourth section, which is the front of the box, the printing on that would read from left to right. And, standing at the rear of the box and facing the box, on the second section, which is the rear of the box, the printing would read from left to right. With the first section of that blank as I saw it made on the first White machine serving at the top of the box, the sheet sections of the top and bottom would overlap the sections of the side sheets. That is just the same as the overlapping relations in the wirebound boxes made according to the standard practice of plaintiffs' licensees. As to the eight cleated blanks that I saw made on the Saranac machines at the various plants, as I have already described, I don't know which sections of those eight cleated blanks were employed as the tops of the boxes. There is no way to tell unless there was printing on at least some of the sections to guide me. This eight cleated blank could be folded so as to use the first section as the top of the box or also folded so that you could use the fourth section as the top of the box.

On all of the Saranac blank machines which I saw at the various plants of defendant's licensees, as I have described, and excepting this first White machine, the construction, arrangement and operation of the clincher blocks was just the same on each and every one of these different Saranac machines, and which I refer to the clincher blocks I mean the element indicated at 36 on Plaintiffs'

Exhibit 9 [ante, p. 68] and on Plaintiffs' Exhibits 8 [ante, p. 65] and 12 [ante, p. 79].

Q. 937. Again excepting the first White machine, on all [fol. 107] of those Saranac machines which you saw that you have described at the plants of defendant's licensees, what, if any, connection was there between that clincher block 36 shown in Plaintiffs' Exhibit 9 and any other part of the machine not shown in Plaintiffs' Exhibit No. 9?

A. I am sure that on the machine at the Conneaut Can Company and at the Marion Handle & Box Company that there was no connection with the clincher block 36 to any other part of the machine except what is shown in Plaintiffs' Exhibit 9. At the other plants that I visited I am not so sure, but I did not see any connection other than shown in Plaintiffs' Exhibit No. 9.

Again excepting the first White machine, on all of the Saranac blank machines which I examined at the plants of defendant's licensees, as I have described, no function was performed by the clincher block 36 in Plaintiffs' Exhibit No. 9, other than serving as a clincher block when alternate cleated blanks were made and serving to retard the cleats as I have explained. The cleat retarding functions of the clincher block 36 in Plaintiffs' Exhibit 9, as I observed those functions on the various Saranac blank machines at the plants of defendant's licensees, were just the same as the cleat retarding functions performed by the detent 36 on the first White machine as I have illustrated it in Plaintiffs' Exhibit No. 17 [ante, p. 104].

Q. 940. You have testified that you observed a Saranac blank machine at the plant of each of the following of defendant's licensees, namely: Conneaut Can Company, Gondert & Lieneseh, Marion Handle & Box Company, St. Louis Box Company, H. R. Gibbons Box Company, Maxwell Brothers, Inc., and the White Box Factory. As to each of those Saranac blank machines, what did you observe as to the mechanism for feeding the box parts in relation to the stapling device, and the manner in which that feed took place?

A. Each and every one of these Saranac machines were fed in exactly the same manner. They were fed with a pawl and ratchet, driving the endless chain forward in a step-by-step movement.

Referring to Plaintiffs' Exhibit 8 (ante, p. 65), the reference numeral 34 in Plaintiffs' Exhibit 8 indicates the endless chains I have just referred to as having been fed by pawl and ratchet with a step-by-step motion in the Saranac machines. These chains are indicated by the numeral 34 on Plaintiffs' Exhibits 12 (ante, p. 70) and 17 (ante, p. 104). As I have already explained, those chains 34 were the feed chains that carried the spacer blocks.

Q. 944. What was the relation of the step-by-step move- [fol. 108] ments of these feed chains 34 with their spacer blocks, and the staple driving operations?

A. The movement of the chain operated by the feeding mechanism in these machines. When the feeding mechanism was driving staples the chains were at rest. And when the stapling mechanism was [illegible] feeding wire and turning the [illegible] were moved.

Each step movement of the feed chains 34 was approximately two inches long.

In answering question 944 I explained the relationship between the stapling operations and the feed of the chains 34. This explanation applies to one and all of the Saranac machines that I observed.

In each of the Saranac blank machines, which I saw at the plants of defendant's licensees, describing how the binding wire was fed so as to be laid on the blank and secured thereto by staples. The binding wire was secured by a staple at the front edge of each blank and as the chains fed the sections forward the binding wire was pulled by the fastenings of the feed chains of one blank and that is the way it was fed. This description applies to one and all of the Saranac machines which I saw at the plants of defendant's licensees. On these Saranac machines there was no other means for pushing or pulling or otherwise feeding the binding wires off of their reels.

On each of the Saranac machines, which I observed at the plants of defendant's licensees, the set up between the last pair of spacer blocks for a blank and the first pair of spacer blocks for the next following blank was a gap of approximately five inches between the last section of one blank and the first section of another blank. The purpose and effect of that set up of spacer blocks which left approximately a five inch gap between one blank and the next

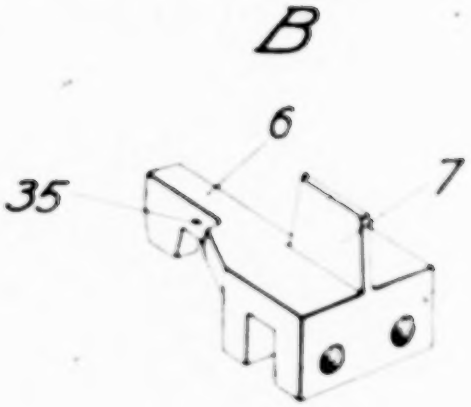
following blank was the binding wires continued across this space of five inches and were fastened to the side sheets on the opposite sides of this gap, and the binding wires were severed about midway of this gap, leaving loose ends of binding wires approximately two and one-half inches long on each end of each finished blank.

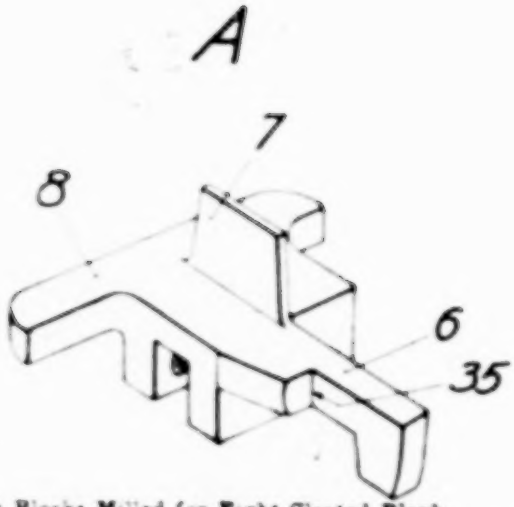
Q. 962. You have testified that you examined all of the Saranac machines which you saw at the plants of defendant's licensees, and that you saw some of those machines in operation making blanks while others of the machines you did not see actually in operation. From your knowledge of wire-bound box blank machines and from [fol. 109] your examination of all of these Saranac machines, what can you say upon this point: How would the operation of the machines which you saw in operation compare with that of the machines which were not actually in operation when you saw them?

A. The operation of all of these machines would be the same.

As to all the Saranac blank machines which I examined at the plant or defendant's licensees, as I have already described, as I saw them set up, the so-called alternate elevated blanks could be made on each and all of these machines that I saw except the first White machine, and the eight elevated blanks could be made on each and every one of these machines using two pre-elevated sections in each blank, if the elevat positioning finger had been milled away as shown at 35 in Fig. 2 of Plaintiffs' Exhibit 8 (ante, p. 65). At four of the plants of defendant's licensees that I visited I saw the spacer blocks having the elevat positioning fingers milled away as indicated at 35 of Fig. 2 in Plaintiffs' Exhibit No. 8. At the Conneaut Can Company's plant, Goodert & Lorosch, Maxwell Brothers and the White Box Factory. I do not know whether there were any spacer blocks at the other plants of defendant's licensees, having the elevat positioning fingers cut away as indicated at 35 in Fig. 2 of Plaintiffs' Exhibit 8.

Earlier in my testimony I said that the spacer block shown in Fig. 2 of Plaintiffs' Exhibit No. 8 was a right-hand spacer block which was used in a pair, the other of which was a left hand spacer block. I can and do produce




Plaintiffs' Exhibit No. 18. Drawing of Right and Left Spacer Blocks Milled for Eight-Cleated Blank

Plaintiffs' Exhibit 12, could be left just as they are, or they could be omitted from the chain entirely. You could substitute for these blocks 11 and 12 on Plaintiffs' Exhibit 12, a pair of blocks like 19 and 20. Using these spacer blocks like the pair 19 on the machine shown in Plaintiffs' Exhibit No. 12, and setting up those spacer blocks for making a blank from eight loose cleats and four loose side sheets, that set-up of blocks would be just the same as the arrangement of the spacer blocks now shown in Plaintiffs' Exhibit 12.

[fol. 110½] Plaintiffs' Exhibit No. 12, Drawing of Defendant's Machine at Gondert & Lienesch Plant, Showing Assembled Blank and Two Pre-Cleated Sections, omitted; printed side page 79, ante.

Q. 969. State whether or not at any of the plants of the defendant's licensees which you visited, as you have already described, you saw enough pairs of spacer blocks like the pair 19 and 20, to equip a machine for making the eight-cleated blank from eight loose cleats and four loose side sheets.

A. I did not count the blocks that I saw as shown on Plaintiffs' Exhibit 12, marked 19 and 20, but I would think there would be enough spacer blocks with each machine to make a blank from eight loose cleats and four loose side sheets if the blank was of an average size; but at the plants where there were one or more blank machines such as I have described at the Maxwell Box Company, where they [fol. 111] have three blank machines, and also at the White box factory, I am sure they would have spacer blocks the same as shown at 19 and 20 in Plaintiffs' Exhibit 12 to equip at least one or two blank machines for making blanks with eight loose cleats and four loose side sheets.

In the Saranac blank machines which I saw at the plants of defendant's licensees, as I have described them, if you used them with four pairs of spacer blocks like the pair 19 and 20 on Plaintiffs' Exhibit 12, and using eight loose cleats and four loose side sheets for the blank, the wired blank product of those machines would be just the same as the standard wirebound box blank made by plaintiffs' licensees, only relative to the overlapping feature that would vary in each blank as to the manner in which the

spacer blocks 19 and 20, as shown on Plaintiffs' Exhibit 12, were placed on the chains.

I can and do produce a drawing showing a set-up of spacer blocks like 19 and 20, such as could be made on one of the Saranac machines which I observed, for positioning the parts of a blank, having eight loose cleats and four loose side sheets.

By Mr. Janney: The drawing just produced by the witness is offered in evidence as Plaintiffs' Exhibit No. 19.

(Here follows Plaintiffs' Exhibit No. 19, side folio 111½.)

Fig. 1 in this drawing Exhibit 19 is a plan view showing the spacer blocks and the box parts. Fig. 2 of Plaintiffs' Exhibit 19 is a side elevation showing the spacer blocks and the box parts. In this drawing Plaintiffs' Exhibit 19, the margins of the sheets of the first and third sections project beyond the cleat ends and the margins of the sheets of the second and fourth sections are flush with their respective cleat ends. This arrangement is just the same as that shown in Plaintiffs' Exhibit 12 [ante, p. 79]. The finished blank produced by this set-up shown in Plaintiffs' Exhibit 19 is just the same as the standard wirebound box blank made by plaintiffs' licensees. The set-up of box materials and spacing blocks in Plaintiffs' Exhibit No. 19 is just the same as the standard practices of plaintiffs' licensees, as in many of the plants. In the wirebound box blanks that I saw made on the Saranac machines at the plants of defendant's licensees, the side sheets that I saw used in making those blanks were one-quarter-inch in thickness. The standard practice of plaintiffs' licensees in making blanks using one-quarter inch thick side sheets, as to the space between [fol. 112] the end of one cleat and the adjacent end of the next cleat, is approximately five-sixteenths inches. The distance between one cleat end and the adjacent cleat end in the set-up illustrated in this drawing Plaintiffs' Exhibit No. 19 is five-sixteenths inches approximately. The thickness of the cleat positioning finger on this Plaintiffs' Exhibit No. 19, where it is interposed between one cleat end and the next, is five-sixteenths inches scant.

Q. 981. How did you get this last measurement of 5/16ths scant?

FIG 1

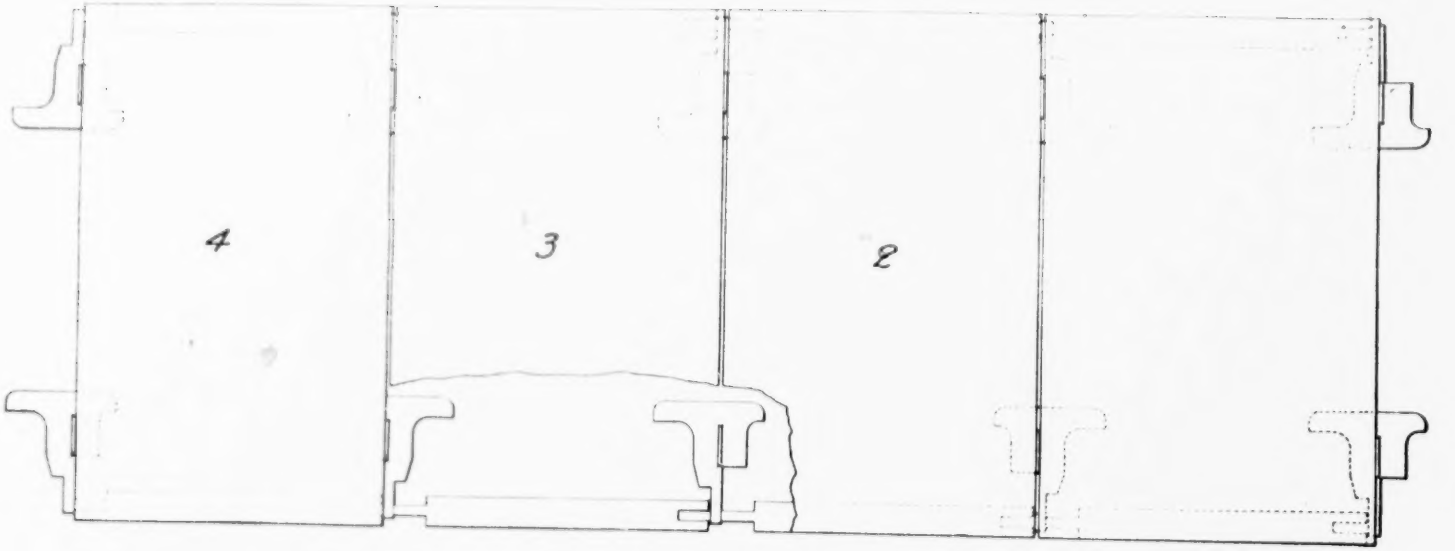
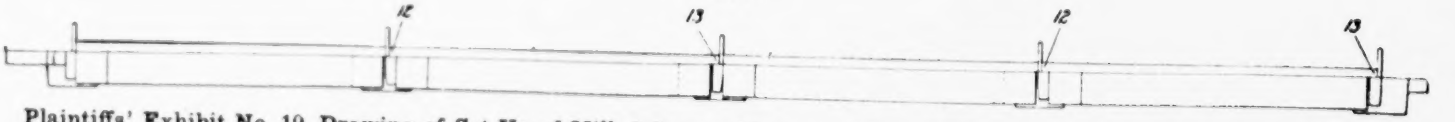



FIG. 2.




Plaintiffs' Exhibit No. 19, Drawing of Set-Up of Milled Spacer Blocks and Box Parts for Producing Eight-Cleated Blank.

A. I measured the cleat positioning finger in Plaintiffs' Exhibit No. 7.

This cleat positioning finger on Plaintiffs' Exhibit No. 7 is just the same as to dimensions as the cleat positioning fingers which I saw on similar blocks in use on the Saranac machines which I observed at the plants of defendant's licensees.

Q. 983. In discussing the South Bend machine that I saw in 1906 and referring to Fig. 1 of the patent in suit, No. 1,128,145, I called your attention to a hand lever 44 shown in that Fig. 1. Please state again, briefly, what was the purpose and use of that hand lever.

A. That hand lever was used in carrying the workholder forward to a point for the blank to receive the first staple. It was also used to move the workholder at any position relative to fore and aft movement that the operator desired to stop the workholder.

This hand lever 44 in Fig. 1 of the patent in suit, No. 1,128,145, to produce the effects I have just described, operated on a pawl and ratchet connected with the roller gear and the table top.

Each and every one of the Saranac blank machines that I saw at the plants of defendants' licensees had what is known as a hand-spacing lever similar to this hand lever 44 shown in Fig. 1 of the patent in suit No. 1,128,145 to move the workholder in a forward direction by hand.

The functioning of that hand-spacing lever that I saw on all of these Saranac machines was just the same as the functioning of this hand lever 44 shown in Fig. 1 of the patent in suit No. 1,128,145. This hand lever on the Saranac machines moved the workholders forward by hand by a pawl and ratchet, this ratchet being the same ratchet that was propelled by power.

Q. 987. Referring again to the South Bend machine which you described in the early part of your deposition and which you said you saw in operation almost daily for three months, beginning about April or May, 1906, was [fol. 113] there any name by which that South Bend machine was called at the time you witnessed its operation in 1906?

A. Yes, sir; it was known to me as the St. Joe machine.

The help in the plant, the operator, the box shop foreman, referred to it as the St. Joe machine. It was referred to as the St. Joe machine because it was built by the St. Joe Iron Works, of St. Joseph, Michigan. That same St. Joe machine was the same one that we referred to throughout my early testimony as the South Bend machine.

At the plant of the South Bend Healy Box Company I saw another machine similar to the so-called St. Joe machine. It was made by the Saranac Machine Company. It was just the same as the St. Joe or so-called South Bend machine, with the exception that the workholder on the Saranac machine had fins on the spacer blocks to position the sheet material. The St. Joe machine did not have those sheet-positioning fins on its spacer blocks.

Q. 295. Which machine was first installed at the South Bend Healy Box Company, the St. Joe machine or the Saranac machine?

A. The St. Joe machine.

When I visited the plant of defendant's licensees, Maxwell Brothers, Inc., as I have already described, I saw there advertising literature of that company. I can and do produce such advertising literature of Maxwell Brothers, Inc. I obtained this advertising circular which I have just produced in the office of the Maxwell Brothers plant; and Mr. Maxwell gave me this literature.

By Mr. Janney: The circular just produced by the witness is offered in evidence as Plaintiffs' Exhibit 20.

(Here follows Plaintiffs' Exhibit No. 20, side folios 1134 and 1135.)

In the standard practice of plaintiffs' licensees, as I have observed it, the binding wires are tensioned over each corner of each box in the finished wire-bound boxes made by the licensees of the 4-One Box Machine Makers. When the blanks made by plaintiffs' licensees are in the flat, I can tell from the relationships of the parts in the flat blanks, whether or not upon folding the blanks into box formation the binding wires will be tensioned over the box corners. In the practice by plaintiffs' licensees, when the loose box parts for a blank are assembled on the blank machine, and before they are wired, I can tell from the assembled

GOOD
WIREBOUND
BOXES
ARE
MONEY
SAVING
BOXES

THE
SHIPPER'S
ASSURANCE
OF
SAFE
DELIVERIES

HOW
TO
SET
UP

WIREBOUND
BOXES



MAXWELL BROTHERS

## SARANAC WIREBOUND BOXES

SAVE MONEY SAVE TIME SAVE LABOR

because They are scientifically constructed, with light but strong wooden frames and thin tough boards bound together with steel wires. The frames and the boards protect and cushion the contents of the boxes while the sturdy steel wires carry the load.

because They are absolutely strong, sturdy, tough and dependable, yet at the same time they are lighter in weight, compact and efficient.

because Their greater strength gives greater protection. Being resilient, they absorb the shocks of transportation without transmitting them to their contents, and thereby reduce breakage and damage claims to minimum.

because No additional strapping or banding is ever required on wirebound boxes. The steel binding wires which are a part of these boxes are in reality round steel strapping. Hence, the expense of heavy domestic shipping strapping charges are eliminated.

because They will safely carry weights up to 200 pounds.

because They stack without crushing in truck, car, platform and warehouse.

because They are convenient to handle inasmuch as the sheared frames form natural hand holds.

because Their light weight reduces freight, express and other transportation and handling charges.

because The sides, ends and bottom of each wirebound box blank are united together by the binding wires, thus making a folding unit of these four sections of the box. This box blank with the two ends makes up the complete wirebound box shook — a total of but three pieces.

because Therefore, the cost of assembling or setting up is reasonably low. Having only three pieces to assemble, the wirebound box takes little time to set up, the confusion of matching up loose parts is eliminated, few and light gauge nails are required consequently very little labor and time for nailing. Being light in weight they are easily handled at all times — in fact, it can be reasonably stated that wirebound box shooks are more than half set up although in knocked-down form.

because They can be securely closed, quickly and easily.

because When properly sealed by correctly twisting together the ends of the binding wires, concealed losses are eliminated and common pilferage is reduced to minimum.

because They arrive at destination intact.

because They sometimes save money in first cost, and they always save money in the total or final shipping cost.

Plaintiffs' Exhibit No. 20, Advertising Circular of Defendant's Licensee Maxwell Brothers, Inc. Obverse Side.

# HOW TO SET UP WIREBOUND BOXES

Plaintiffs' Exhibit No. 20, Advertising Circular of Defendant's Licensee Maxwell Brothers, Inc. Reverse Side.

(tot. 114) relationship of the box parts, whether or not after wiring and upon folding the blanks into box form, the binding wires will be tensioned over the box corners.

In the finished wirebound boxes which I observed in completed form or in process of finishing and completion at the plants of defendant's licensees, as I have already described, every box, at each and every corner, had the binding wires tensioned over the box corners. In the flat wirebound box blanks as I observed them, either assembled on the blank machines, or in process on the blank machines, or after they had issued from the blank machines in the plants of defendant's licensees, as I have already described, these relationships of the parts of each and every one of those blanks were such that in folding the finished blanks the wires would be tensioned over the box corners. In the manufacture of wirebound box blanks by plaintiffs' licensees, as I have observed it, the tensioning of the wires is provided for by the dimension of the material and its relationship from one section to another in the workholder. The relationship between one section and another in the workholder which provides for the tensioning of the wires over the box corners, is that the space between side sheets must be less than the thickness of the material of the side sheets. This relationship of the side sheets, for the purpose of producing the tensioning of the binding wires over the box corners, in the manufacture of wirebound box blanks by plaintiffs' licensees, is determined at the stage of manufacture in cutting the material to dimension and setting up the spacer blocks in the blank machine and in placing the finished box parts in the set up on the blank machine.

In the manufacture of wirebound box blanks on the Saranac blank machines, as I saw it at the plants of defendant's licensees, as I have already described it, the tensioning of the wires over the box corners was provided for by cutting the box materials to their right dimensions and setting up the spacer blocks and placing the box parts in the set up on the chains. The set up of the box parts on those Saranac machines which provided for the tensioning of the wires over the box corners was, the space between the side sheets was less than the thickness of the side sheets. The provision for tensioning the wires over the box corners as I observed it in the practice of defendant's licensees, and

[fol. 115] was just the same as the provision for tensioning the wires over the box corners in the practice of plaintiffs' licensees and on plaintiffs' blank machines. The tensioning of the binding wires over the box corners in the boxes made by defendant's licensees, as I observed them, was just the same as the tensioning of the binding wires over the box corners in the standard practice of plaintiffs' licensees.

Q. 1011. In the practice of defendant's licensees as you observed it on the Saranac blank machines, as you have already described, to what extent were the side sheets of the wirebound box-blanks spaced apart at their adjacent edges a distance less than the thickness of the side sheets?

A. Each and every one of them.

Q. 1012. Answer the same question with reference to the standard practice by plaintiffs' licensees on plaintiffs' blank machines?

A. Each and every one of them.

Q. 1013. Answer the same question with reference to the South Bend machine which you saw operating in 1906.

A. Just the same.

In a finished wirebound box such as I have observed in process and completed at the plants of defendant's licensees, as I have already described, the tensioning of the binding wires was manifested by the wires cutting into each sheet edge at each corner of the box,—that showed that the wires were tensioned. In the finished wirebound boxes made by the standard practice of plaintiffs' licensees on plaintiffs' blank machines, the tensioning of the binding wires over the box corners is manifested by the cutting in of the wires over the sheet edge at each corner of the box. Just the same with reference to the wirebound boxes which I saw produced in connection with the South Bend machines that I observed in 1906.

I have referred to two types of so-called pre-cleating machines which I saw in operation at different plants of defendant's licensees. I can and do produce illustrations of such machines.

By Mr. Janney: The witness produces a copy of the periodical "Barrel & Box," Vol. XXX, No. 3, May, 1925, published at Chicago, Illinois; and witness points out an advertisement appearing at the lower right-hand corner of page 13 of the periodical.

## Telescoped Barrels Save Storage Space and Freight Bills

APPLE GROWERS are finding the Sandusky Telescoped Barrel a big money saver.

Sandusky Barrels are not only exceptionally well made and of carefully selected No. 1 stock, but the features of space saving, easy hooping and heading and quick handling have proven attractive to every buyer. Our cooperage shops are strategically located for slack barrel users throughout the territory east of the Mississippi, also in Missouri, Arkansas, Iowa and Nebraska.

The Sandusky Cooperage and Lumber Co.

Buder Building St. Louis, Mo.

## Why?-

not save time and money when your saws need resteeling?

Our thoroughly modern factory is fully equipped to make new drums and resteel old drums fitting any machine.

All work is guaranteed and backed by thirty years of experience.

**Write today for prices**

**Southern Stave Saw & Machine Company**

**112 South 19th Street, Birmingham, Ala.**

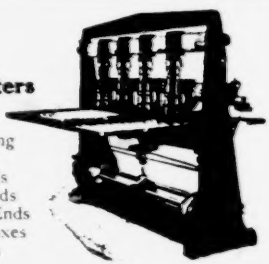
## COE VENEER MACHINERY

*"The Standard of the World"*

Automatic Clippers
Knife Grinders
Roller Dryers
Lathes

**THE COE MANUFACTURING CO.**
**PAINESVILLE, OHIO**

**Saranac Stapling Cleaters**



3-way Interlocking Corner Boxes
No. 4 Style Ends
No. 2½ Style Ends
Wirebound Box Ends
Hinge Corner Boxes
Egg Case Ends
Piano Shook
Etc., Etc.

*Saranac Cleater, Head Feed*

*Tell us the range of sizes of the box ends you wish to make, the range of the thickness combinations, the thickest and thinnest and the widest and narrowest cleats you expect to use, and the range of the quantities or lots you want to run.*

*Saranac Cleater, Chain Feed*

**SARANAC MACHINE CO.**

*Manufacturers of the Largest Line of Package Stapling Machinery in the World*

**Benton Harbor Michigan**

Plaintiffs' Exhibit No. 21, Defendant's Advertisement in May, 1925. Issue of "Barrel & Box."

[fol. 116] Referring to this advertisement that I have just indicated, this machine illustrated at the upper right-hand corner of the advertisement, entitled "Saranac Cleater, Hand Feed," is the same machine that I saw at the Conneaut Can Company and also at the Gondert & Lienesch plant at Dayton, Ohio. I have also referred to that machine in my testimony. In my earlier testimony I called the machine a pre-cleating machine. That machine drove the staples through the sheets and into the cleats on the box sections. There were no binding wires attached on that machine.

This machine shown at the lower part of this advertisement on page 13 of "Barrel & Box,"—I refer to the picture entitled "Saranac Cleater, Chain Feed,"—is the same machine that I saw in use at the White box factory, pre-cleating the box sections. I have already referred to that machine in my earlier testimony, and in my earlier testimony I called that machine the pre-cleating machine. That machine stapled the sheets to cleats at the White Box Factory. There were no binding wires attached in the operation of that machine.

By Mr. Janney: The advertisement just referred to by the witness is offered in evidence as Plaintiffs' Exhibit 21.

It is noted on the record that the advertisement is entitled in large letters, "Saranac Stapling Cleaters," and is subscribed "Saranac Machine Co., Benton Harbor, Michigan."

(Here follows Plaintiffs' Exhibit No. 21, side folio 116½.)

Q. 1028. Please explain fully just what your status is in the organization of the plaintiff 4-One Box Machine Makers and what has been the nature of your duties in that employment so that the court may have a complete idea of your familiarity with machinery, methods and boxes in the wirebound box industry.

A. In April or May, 1906, I was employed as a mechanic by the National Wirebound Box Company of South Bend, Indiana, and it was my duty at that time to assemble wirebound box-blank machinss.

After serving in that capacity for approximately three months, I was sent in the field to install wirebound box-

blank machines and the methods of handling same, instructing the management and help at these different plants to install machinery built and licensed to these various licensees as to the methods in which to cut to dimensions the box parts and the assembling of 4-One boxes, and also the [fol. 417] closing of the 4-One boxes and handling the same in the shipping department.

Later on, as I became more familiar with the methods of properly handling wirebound box machinery and the product made on those machines I was loaned to different licensees to put in practice at their plants the proper methods of cutting materials, and manufacturing and handling 4-One box machinery and the product made on these machines.

For instance, I was loaned to the Van Camp Packing Company for a period of forty-five weeks. During this period I had full charge of their box shop and of packing the contents into these boxes, and of closing these boxes; and also of receiving the raw materials for these boxes and putting the finished boxes into the packing departments.

Again, I was loaned to the New York Wirebound Box Company for a period of approximately one year. I had full charge of the manufacturing of 4-One boxes for this company and the methods employed in handling this product.

The average daily output of boxes under my supervision at the Van Camp Packing Company was approximately 10,000 boxes a day. I don't remember the average daily output of boxes under my supervision at the New York Wirebound Box Company. We had so many different sizes of boxes and were making boxes for the trade commercially. There were three blank machines in use under my supervision at the New York Wirebound Box Company. They were in operation continuously each and every day. At that time in making boxes commercially and making all sizes of boxes we figured the output in lineal inches per machine. The machines of the New York Wirebound Box Company produced approximately 90,000 inches per machine per ten-hour day.

Again, I was loaned to the Rathborne, Hair & Ridgway Company of Chicago and given full charge of their wirebound box department, consisting of eight blank machines and at least ten end staplers and also the woodworking machinery that prepared the materials ready for the blank

machines. I also was called to the office of the Rathborne, Hair & Ridgway Company many times to consult with the managers of that plant as to their next move in order to make their 4-One box business more profitable.

Rathborne, Hair & Ridgway is one of the biggest box makers in the United States and Canada.

While loaned and in service at the Rathborne, Hair & [fol. 118] Ridgway plant I put in methods of handling 4-One boxes in practice at different packing companies in the stockyards of Chicago. At Armour & Company I put into practice the methods of handling wirebound boxes in their smoked meats department, their sausage department, their soap department and their fresh meats department.

After I finished the work that was laid out for me to do at the Rathborne, Hair & Ridgway plant I put in practice the methods of handling, closing and shipping 4-One boxes in many different packing companies in Chicago and elsewhere. For instance, Swift & Company, Libby, McNeil & Libby, Kingan Packing Company, The Cudahy Packing Company and many others.

Q. 1038. How did the output of wirebound boxes under your supervision at Rathborne, Hair & Ridgway compare with the output of 10,000 a day under your supervision at the Van Camp Packing Company?

A. Well, at that time I doubt very much if they made any greater number of boxes at Rathborne, Hair & Ridgway than they did at the Van Camp Packing Company, but the biggest problem at Rathborne, Hair & Ridgway at that time was to hold their production equal in lineal inches to the production at the Van Camp Packing Company and at the same time make say from fifteen to thirty different sizes of boxes each and every day. The boxes made at Rathborne, Hair & Ridgway were of considerably greater size than the boxes made at the Van Camp Packing Company.

Q. 1039. What problem is involved in making so many different sizes of boxes per day on the blank machine?

A. Changing every machine throughout the plant, the wood-working machinery to cut the product to the proper size for that particular order, and each blank machine must be changed to handle a specific size, so that each and every machine that participated in the manufacture of wirebound boxes must be changed for each different size of box made.

The eight blank machines at the Rathborne, Hair & Ridgway Company were continuously in use practically every day.

About five years ago the 4-One Box Machine Makers made me manager of a department known to the 4-One Box Machine Makers as the Manufacturing Methods Service Department. I continued in that position from then till now. Being manager of this department I have in my charge the employees of this department and also the service work and methods of all the licensed machines of the 4-One Box Ma- [fol. 119] chine Makers and I visit each of these plants approximately every year, and many of the plants more than once a year. The occasion for my visiting the plants of these licensees of the plaintiffs is in order to assist them in their methods of manufacture so as to increase their quality and production, and I have at hand now requests from three of our licensees asking me to call on them in person to assist in helping them in their methods of manufacture and the problems that confront them every day in the operation of their plants.

I am also in charge of the inspection of the finished machinery that is licensed by the 4-One Box Machine Makers; and each and every machine must be O. K.'d to the manager of the 4-One Box Machine Makers by me before it is crated for shipment.

I also pass on the drawings of the experimental work in our engineering department. I also pass on the experimental work on the machines and parts after they are built as to the advisibility of further building these experimental parts.

When experimental machines or devices or methods or practices are suggested for commercial use in the organization of 4-One Box Machine Makers, I determine whether they should be put into commercial use. I am called on more times by our licensees to give them advice as to their manufacturing and the handling of their machinery and the handling of their finished product, than I am able to fill. For instance, while giving this testimony I was called by telephone by Mr. Miller of the Rathborne, Hair & Ridgway Company, asking my advice as to his machinery. In the design of 4-One boxes to carry special commodities I am called on frequently to lay out the floor space in the box factories in order to more conveniently handle their wire-

bound box business, of which I have at hand several prints of several box factories that I have personally drafted and laid out for their use, and which are being used. I have been asked and have been called on to go South into the lumber districts to purchase raw material for licensees and see that this material was cut and dried satisfactorily for its use in making 4-One boxes. This material is rotary cut veneer. We use in the manufacture of 4-One boxes many different kinds of rotary cut veneer, such as gum, pine, birch, maple, cottonwood, poplar and so forth.

I can and do produce examples of general advertising by the Saranac Automatic Machine Corporation.

[fol. 120] The witness produces the following periodicals and points out the pages therein indicated as follows, namely:

"Packages," Vol. XXVI, No. 4, April, 1923, page 22.

"Packages," Vol. XXVI, No. 6, June, 1923, page 4.

"Packages," Vol. XXVI, No. 8, August, 1923, page 7.

"Packages," Vol. XXVII, No. 4, April, 1924, page 26.

"Packages," Vol. XXVIII, No. 4, April, 1925, outer front cover page.

"Packages," Vol. XXVIII, No. 5, May, 1925, page 17.

"Barrel & Box," Vol. XXVIII, No. 2, April, 1923, page 55.

"Barrel & Box," Vol. XXVIII, No. 5, July, 1923, page 52.

"Barrel & Box," Vol. XXIX, No. 2, April, 1924, page 31.

"Barrel & Box," Vol. XXX, No. 2, April, 1925, page 35.

"Barrel & Box," Vol. XXX, No. 3, May, 1925, page 33.

By Mr. Janney: Plaintiffs' counsel offers in evidence the pages of the respective periodicals produced and indicated by the witness, to be marked collectively Plaintiffs' Exhibit No. 22.

By Mr. Cox: Objected to as immaterial, irrelevant and incompetent, although defendant waives objection as to authenticity of publication.

This publication "Packages," of which I have produced several copies, is circulated practically all over the United States and to all users and manufacturers of machinery, wirebound machinery as well as others, and to users of wirebound boxes.

This publication, "Barrel & Box," of which I have produced several copies, is circulated throughout the United States to the manufacturers of wirebound boxes and the users of wirebound box machines as well as to people who produce raw material to make wirebound boxes.

Q. 1051. State whether either of these periodicals, "Packages" or "Barrel & Box," have any circulation in the general box industry without reference to wirebound boxes.

A. Yes, they do, relating to all manner of wooden boxes.

[fol. 121] By Mr. Janney: Plaintiffs' Exhibits 1 to 21, inclusive, referred to during the direct examination of the witness Steele, are now offered in evidence.

Direct examination closed.

Cross-examination.

By Mr. Cox:

The name-plate on the Conneaut machine about which I testified was "Property of the Sarnac Automatic Machine Corporation." The South Bend machine had no name-plate as I know of. At least, I never noticed any name-plate on the South Bend machine. I think I would recognize a photoprint of the South Bend machine if I saw it.

X Q. 1056. I hand you two photoprints and ask you if you know what they show?

A. This is a blue-print of the South Bend machine as I remember it.

X Q. 1057. There are two of these prints. You include both of them, do you?

A. I can see no difference in this print from the other one, only one is a rear view and the other one is a front view. It is pretty hard to identify a machine exactly from —a machine that you saw in operation twelve years ago.

By Mr. Cox: The prints referred to by the witness may be marked for identification as Defendant's Exhibits Nos. 1 and 1a.

I have testified that I never saw a machine like the South Bend machine without guides. There are none of those machines in operation now that I know of.

X Q. 1060. When did you last see one like that in operation?

A. Well, I am not sure as to the date when they quit operation at the Healy Box Company in South Bend, but sometime about 1911 or '12.

X Q. 1061. You have said, I think, that a machine like this could be operated in your judgment without guides, but that is a purely suppositional statement on your part, isn't it?

A. Well, I would say not. For instance, we did have them and do now and have had every day from that day till the present time an end stapler that drives staples in a straight line without any guides to guide the driving of those staples, only by the operator's hands to steady and [fol. 122] feed these battens on the end panels over the stapling point.

They are not wirebound box-blanks but it is the same feeding with the exception that on the end stapler without guides you do not have any binding wire to even assist you in this feeding.

X Q. 1063. Colonel Babcock has testified in the Gibbons suit that there was a substantial back-pull on the wires coming off of the reel. Do you agree with him or disagree with him?

A. I will say this: There was no tension on the wire. There may have been sometimes some little tension on the wire, on the binding wire, but nevertheless all of back-pull that was on the binding wires was taken up by the driving gear meshed in the rack of the workholder.

X Q. 1064. And you think the workholder would without any assistance lie down on the rack regardless of any back-pull on the binding wires, do you?

A. This rack may not lie clear down so the teeth meshed the full length of the teeth, but the binding guide under which the binding wire was guided in a line so the staples would drive straddle of this wire was in front of the stapling point and down close enough to the sheets with a very small clearance so that any back-pull of the binding wire could not raise the sheet on the workholder high enough to make any trouble.

That was not the only machine where the wire guides were close to the sheet material. Every machine that has

been built by the Acme Box Machine Makers has had the wire guides that guide the stapling wire and lay the stapling wire on the sheets as close to the top of the sheet material as it was practical to put it. If that wire guide was high off the sheet you would have a hump in the wire between each and every staple.

X Q. 1065. Then a wire guide was practically essential to make that type of mechanism work without guides.

A. Well, that was a part of that machine that would assist and hold the workholder from raising out of the gears providing the binding wires got caught on the spool.

X Q. 1066. You say in answer to question 49 that the workholder that you saw on the South Bend machine in April or May, 1906, consisted of two parallel channels rigid in cross-section and spacer blocks. Now, will you describe a little more fully what this workholder was and what it looked like?

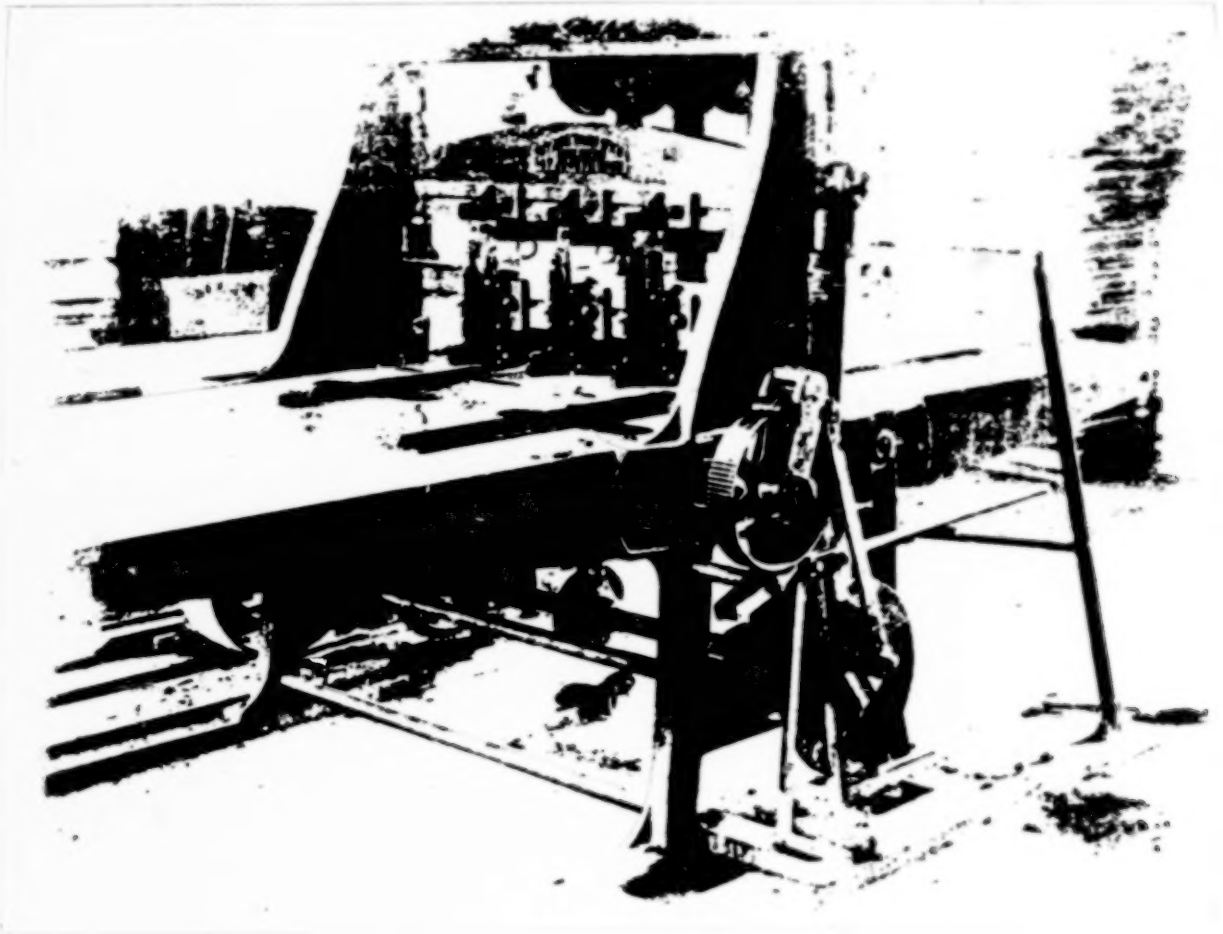
(Here follows Defendants' Exhibits Nos. 1 and 1a, sidefolios 122a and 122b)

[fol. 123] A. Well, if you will tell me what part of it you want me to describe.

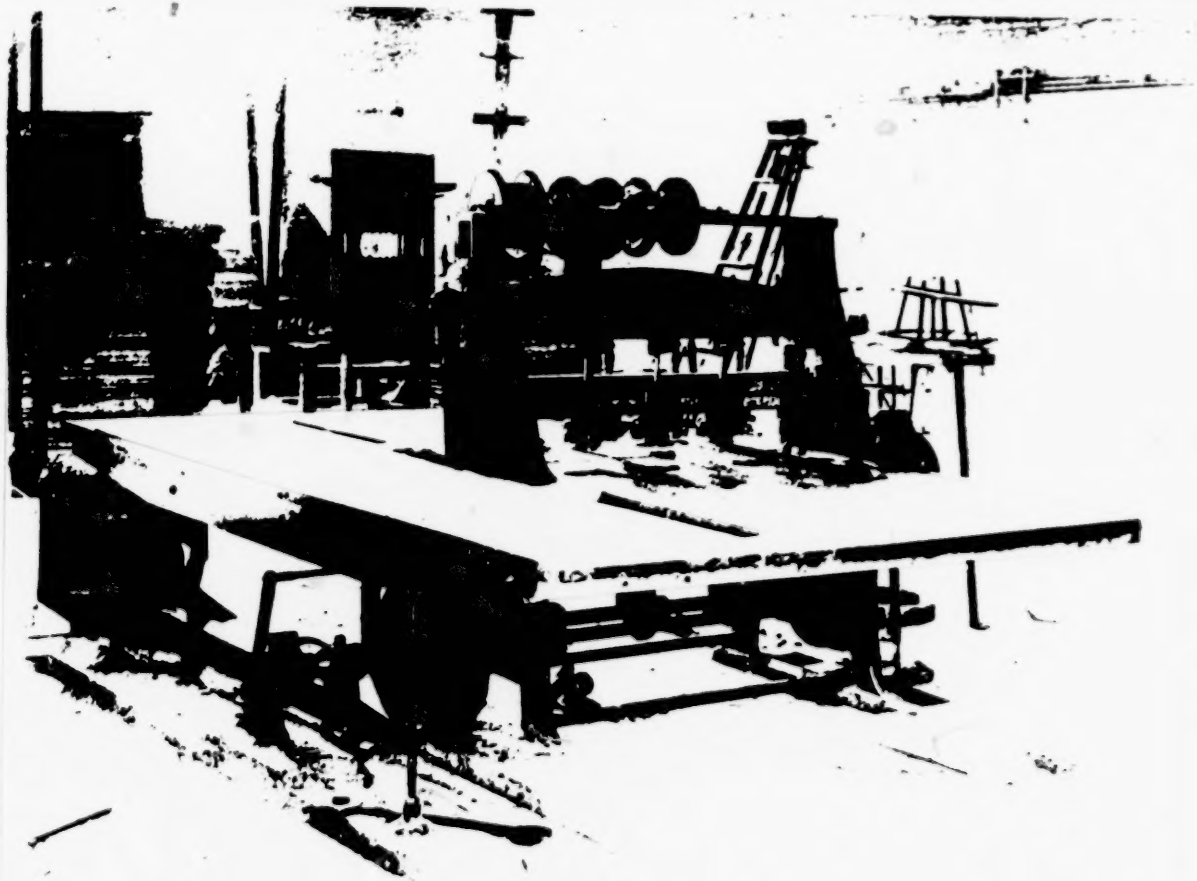
X Q. 1067. Well, it was a rigid and rectangular frame, wasn't it, having the frame members designed to support the cleats and the sheets and the spacer blocks prevented the cleats from moving in either direction endwise? That would briefly describe that workholder, wouldn't it?

A. Well, not altogether. The cross-members of these two channels were made adjustable but were rigid at the time the workholder was in operation, and not only the spacer blocks held the cleats in their proper shape, but there were springs on the inner walls of this channel to also hold the cleats in their proper shape.

Those workholder frames were portable in the sense that they could be moved around the shop and filled in one position and then brought to the machine. It did make a difference which end was put into the machine first, to the extent that when setting up a blank, or at least it was their practice in setting up a blank, that they always began to set the blank at the rear end of the workholder. The rear end of the workholder did not differ from the front end in any



Defendant's Exhibit No. 1—Photoprint of "South Bend" or "St. Joe" Machine.



Defendant's Exhibit No. 1a—Photoprint of "South Bend" or "St. Joe" Machine.

always fill the workholder from the front to the rear entirely full, and they had one specific place to begin the setting of this blank for the box parts. One end became the rear end not when they began to fill the workholder but when they put on the spacer blocks; they began setting the spacer blocks, measuring from the rear end of the workholder and that same rear end was always the rear end while fed under those stapling heads, during the completion of that order.

X Q. 1072. And would the spacer blocks permit any endwise movement of the cleats after they were in position on the workholder on that South Bend machine?

A. If there was nothing else to hold the cleat but the spacer block in an endwise motion, it would hold it within a reasonable distance, whatever the length was between the spacer blocks more than the length of the cleat.

It was the practice that the distance between the spacer blocks was the length of a cleat plus 1 32 of an inch.

In the Conneaut machine the cleats rested in a guide-way in the blank machine which was in cross-section channel-shaped.

Refering again to Defendant's Exhibit 1 and 1-a, which is the machine that I have referred to as the South Bend machine, I have said that it was made at the St. Joe Iron [fol. 124] Works. On Defendant's Exhibit 1 the machine has the name-plate "St. Joe Iron Works. Builders. St. Joseph, Michigan." I do not know who it was that designed the machine.

X Q. 1078. I am told that the designer was Norman E. Brown. Does that bring anything back to your memory?

A. I don't know who designed it.

I have heard his name mentioned, but I never met him or never saw him and don't know what his business is.

X Q. 1080. You have testified, Mr. Steele, that you could read drawings, and I wish you would examine these that I now hand you and state whether they do not in substance show the same thing as the St. Joe Iron Works machine or what you have been calling the South Bend machine.

By Mr. Janney: The question is objected to as immaterial and irrelevant and it is noted that all of the circumstances of similarity and dissimilarity between the machine

of this Brown patent and of the two machine patents in suit are pointed out in the record of the interference between this patentee Brown and Inwood and Lavenberg, the patentees of the patents in suit, which interference involved the application for this same Brown patent and the applications for the two machine patents in suit.

A. These drawings are similar to the South Bend machine with the exception of several details which were not on the South Bend machine as I saw it.

On Fig. 1 it shows that the binding wire marked 1 and the stapling wire both fed into this machine from the same side and direction. This is not true with the South Bend machine. And on this Fig. 1 it does not show any hand spacing lever. In Fig. 7 it shows a box blank consisting of side sheets and cleats. From the drawing of this figure it shows the sheets of this blank spaced apart. This was not true in actual operation of the South Bend machine.

In Fig. 10 it shows the outside wall of the channel on the workholder marked j'. It shows this wall the same height and even with the top surface of the side sheets. This was not true on the South Bend machine.

In Fig. 6, the cross-members of the workholder marked j' shows no method of adjusting this workholder so as to bring the side channels closer together or farther apart. [fol. 125] None of these drawings shows any pressure bar fixed thereto.

In Fig. 6 the geared tooth rack attached to this workholder, shows the rack attached to the side of the workholder. This is not true as compared to the South Bend machine, as the rack on the workholder as I saw it on the South Bend machine was attached to the bottom of the workholder.

These drawings are incomplete in a good many ways relative to the South Bend machine, but similar in construction and there may be more difference in this drawing relative to the South Bend machine as I saw it.

X Q. 1082. But you have mentioned all the differences that now occur to you; is that it?

A. Yes, sir.

By the Notary: The witness has been referring to the drawings of Norman E. Brown patent 1,276,484.

X Q. 1083. How would you define a workholder if you

were going to describe the meaning of such a term, say, for example to a student of mechanics; what would you say a workholder was?

By Mr. Janney: Objected to as immaterial, irrelevant and incompetent. This witness has not been qaulified as a lexicographer. If defendant's counsel refers to the witness particular mechanical devices or asks comparisons of such devices, the witness can describe them and make comparisons. But it is wholly futile to ask this witness to formulate definitions of generic terms.

By Mr. Cox: The witness has used the term a great many times and it seems to be proper to inquire in what sense he uses the term, but if he cannot or will not answer the question he is at liberty to decline to do so.

A. Well, in the first place, in talking to a mechanic you would describe a workholder as parts so designated to hold or clamp thereto a part or parts to be held in order that you might fasten together or hold in relation to some other part until some work is done on these clamped or positioned parts such as drilling holes therein or milling away a part or driving nails or staples or things of many different character.

X Q. 1084. Leaving out of consideration for the moment the South Bend machine, did any of the other ma- [fol. 126] chines about you which you testified have any clamps in them?

A. Not in the workholders, that I would term as clamps. There was on the Saranac machines as I observed them clincher blocks and a detent on one of the machines that I observed in which these clincher blocks that were on all of these machines that I observed except one, were held against the outside wall of the cleat with a spring pressure that might be considered as a clamp. And the one machine known as the Saranac machine that I observed where the clincher blocks were omitted had a detent in the workholder that may have served as a clamp against the inside walls of the cleats.

X Q. 1085. For the sake of simplicity I will adopt your terminology and refer to the machines which you described on your direct testimony, but excluding the South Bend machine, as Saranac machines. In all of these Saranac machines there were long stationary guides leading up to the stapler and the cleats slid along in these guides up toward

the staplers and the cleats rested on the bottom of the guides; is that not true?

A. Yes, sir.

X Q. 1086. In operating one of the Saranac machines to make an alternate cleated blank, a man or woman whom I understand you call a stock feeder stands on each side of the machine and places a cleat in this stationary guide or channel; that is correct, isn't it?

A. Yes, sir.

X Q. 1087. And then the cleat pusher fastened to the feed chain and moving along with it comes up behind the cleat and then advances the cleat with the feed chain and pusher; that is correct, isn't it?

A. Yes, sir.

X Q. 1088. And the cleat stands still until the cleat pusher comes along and pushes it forward?

A. Yes, sir.

X Q. 1089. And the distance between two cleat pushers on the same side of the machine is equal approximately to the length of two cleats, isn't it? We are talking about an alternate cleated blank.

A. The distance between the pushing faces of the cleat positioning fingers is approximately the distance of the width of the first and second sheet sections on this blank.

X Q. 1090. The thing which keeps the cleat in contact with its pusher is the friction of the cleat in the guide, isn't it?

A. No, sir. The rear end of the cleat is not held at all [fol. 1271] times against the pushing finger of that section, but is only held against the face of the pushing finger of that section just before it passes under the stapling point.

In all the machines of the Saranac type that I observed the guideways or channels in cross-section were approximately 1 16 inches wider than the cleat, and, therefore, there would be no friction between the channels and cleats until just before the cleat reached the stapling point.

X Q. 1091. But you have said that the cleat rested upon a stationary channel and the pusher pushes it along the channel. Naturally there has to be friction between the bottom of the cleat and the guide that supports it; isn't that so?

A. There is some friction between the bottom of this cleat and the top surface of the bottom of the guideways,

but after a machine has been operated for a few days the top surface of the bottom of the guideways is so polished that the friction from the weight of the cleat on these guideways is not noticeable.

X Q. 1092. In these Saranac machines you couldn't take away the stationary cleat guides without totally disorganizing the machine, could you?

A. No, sir.

X Q. 1093. In making an alternate cleated blank with the Saranac type machine, how far forward could a cleat move in its guide from the pusher that is supposed to push that cleat?

A. The rear end of the cleat that rests against the pushing finger in making an alternate cleated blank can move forward until the front end of the same cleat engages against the pushing finger in the front of the cleat, unless held back by the clincher block as before described or the detent as before described. That distance would be approximately the distance of the section of the box where the cleats are omitted.

In the Saranac machine the spacer blocks support the sheets or side material. The uncleated sections of an alternate cleated blank are unsupported between the blocks. The sheets of the cleated sections are also supported by the spacer blocks until they get to a point just in front of the stapling point and there all the sheets are supported by guides between the endless chains that carry the spacer blocks and the top edges of these guides are on a plane with the sheet resting portions of the spacer blocks.

In these Saranac machines the fins on the spacer blocks at the rear of each sheet push the sheets.

X Q. 1098. These fins determine the space between the [fol. 128] adjacent edges of the sheets which they separate, don't they?

A. The openings between the sheets can be no less than the thickness of these fins, but it may be greater.

X Q. 1100. If the fins are thick enough the blank will not produce a lap-cornered box, will it?

A. I don't think the thickness of the fins has anything to do with a lap-cornered box.

X Q. 1101. Do you think if the fins were two inches thick that the box corners would lap?

A. It depends on the relation of the fin to the pushing surface of the cleat positioning finger.

X Q. 1102. Please tell me how you would make a lap-cornered box if the sheet pushing fins were two inches thick.

A. For instance if spacer blocks as shown at 19 and 20 in Fig. 1 in Plaintiffs' Exhibit 8 [ante, p. 65] were reversed on the chain; if block 19 were placed where block 20 now is on the figure and block 20 was placed in the same position that block 19 is, and the rear faces of those blocks as now shown in this figure were in the same relation to the pushing finger as is shown in block 20, the sheet of that section that was placed in front of these blocks would have a margin of approximately $\frac{1}{4}$ inch extending beyond each cleat end, and in making a blank as I have just described this $\frac{1}{4}$ inch projecting margin would overlap the next side sheet no matter if the sheet on the adjoining section fell short of the cleat ends or not.

X Q. 1103. I don't quite follow you, but in any event you would have about two inches of loose wire between the adjacent edges of the sheet, wouldn't you?

A. This wire would not be loose. It would be to that box the same as to any wirebound box if through an accident the top of the side sheet had been broken off.

X Q. 1104. Do you mean to say the method you have described would produce a lap-cornered box?

A. I mean to say that the length of the binding wire needed on these two sections as I have described would be the exact length of a wire stapled to the sheets in the method used in making box-blanks where the side sheets overlap the adjoining sheets and in folding this blank the wires would have the same tension as an overlapping cornered box as is made on the 4-One Box Machine Makers blank machines.

X Q. 1105. You have evidently overlooked the fact that I asked about a lap-cornered box. The fact is, isn't it, that [fol. 129] if the sheet pusher fins are thickened, the amount of lap at the corner will be correspondingly decreased, all other things being equal?

By Mr. Janney: The question is objected to as a little vague. I think defendant's counsel ought to define just what he means by a lap-cornered box—whether an abso-

lutely tight corner or otherwise—so that an understanding between counsel and the witness may be assured.

X Q. 1106. Please answer the question assuming that I am referring to a tight lap-cornered box. You can't produce a tight lap-cornered box with ½ inch thick side sheets if the sheet pushing fins were two inches thick and at the same time have tight binding wires, can you?

By Mr. Janney: The question is objected to as double-barreled and confusing for that reason. The question of the possibility of producing a tight lap-cornered box and the question of having tight binding wires are two entirely separate propositions as the witness has already intimated; and these two matters should not be inquired about under the guise of a single question. The witness is cautioned to read the question very carefully before answering and to note the double aspect of the question.

A. It is impossible to make a lap-cornered box if all four side sheets fall short at each end of each cleat, and as to the tension of the wire over the corners of a box whose side sheets fall short of the ends of each cleat, it is determined by the distance between the ends of the cleats of the adjacent sections.

I regard the fins that push the sheets as spacers. They are a part of the spacing device and they space the sheets.

X Q. 1109. They space them by coming in between them; is that it?

A. Yes, sir.

In speaking about the South Bend machine, I have referred to the blocks in the workholder which came between the ends of the cleats as spacer blocks.

X Q. 1111. They space the cleats by coming in between them and thus holding them apart; do they not?

A. Well, not altogether holding them apart. They space the cleats by coming between them and also they are spaced and held in position by the springs on the sides of the channels.

[fol. 130] But if the springs were absent, the blocks would still prevent the cleat ends from coming any closer together than the width of the blocks.

In the Saranac type of machine the only thing that pushes the cleat is the finger that projects out from the

side of the block into the path of the cleat in making an alternate cleated blank. The body of the block does not come in the path of the cleat itself, just the cleat positioning finger.

X Q. 1115. In the workholder on the South Bend or St. Joe Iron Works machine, if the box-blank to be made were of such size that it would occupy the entire length of the workholder, then the workholder could be introduced into the stapling machine either end foremost; could it not?

A. I can't say as to that. I don't recall of this workholder being set up in any direction but so the block at the rear end of this workholder spaced the cleats of the top section of the box.

X Q. 1116. Well, you have stated that the construction of the frame was the same at both ends. Now, if this is true, and the machine is being operated upon a blank which occupies the entire length of the workholder, there is no reason why the frame could not be inserted either end first; isn't that so?

A. I see no reason right now. I can see no reason why they could not set up blanks beginning at either end of this workholder.

X Q. 1117. And you can't see any reason why if the materials occupy the entire length of the frame, that the frame could not be advanced either end foremost; can you?

By Mr. White: The question of counsel is objected to on the ground that it is indefinite. What does counsel mean by the "frame"? Counsel is requested in framing his questions to distinguish between the frame and the workholder.

By Mr. Cox: I am using the term in the same manner as the witness used it, and if plaintiffs' counsel will distinguish between the workholder and the frame, defendant's counsel would like to hear the distinction.

A. I cannot.

X Q. 1118. In the Saranac type of machine in which the cleats are advanced by pushers fastened to endless feed chains please assume that we are making an alternate cleated blank. In such case the chains would have to move [fol. 131] in a definite direction towards the stapler, wouldn't they; for example, if the second and fourth sheets were to receive cleats, it wouldn't do to reverse the direc-

tion of motion, would it, assuming that the stapling mechanism could be moved to the opposite end of the machine?

A. It could not.

X Q. 1118*a*. In your direct testimony you referred to the Inwood & Lavenberg reissue patent No. 12,725. Will you please refer to a copy of that patent?

A. I have this copy in hand.

X Q. 119. How would you proceed to make a wire bound box-blank like the one shown in that patent?

By Mr. White: The question is objected to on the ground that it is improper cross-examination; furthermore, on the ground that it is indefinite since the question does not state how the blank is to be made, whether by machine or by hand or how.

A. In answering the question it makes a good deal of difference in the answer whether this blank is to be made by machine and by what machine and whose machine, or whether it is to be made by hand.

X Q. 1120. In other words, you can't answer that question unless I tell you whether it is to be made by hand or machine, and if by machine, what kind of machine; is that it?

A. I can answer the question but I think I can answer it much more definitely and clearly if you will tell me whether you want a box-blank machine with step-mitered cleats used, or whose machine it is to be made on, or whether it is to be made by hand.

X Q. 1121. You would employ a different method, would you, if you made it by hand, than you would if you made it by machine?

By Mr. White: That question is objected to as being highly improper; moreover, the question calls for a conclusion of the witness. The witness has not yet been questioned with regard to any method whatever so far as the making of this blank of the reissue patent is concerned.

A. The same method could be used in making the blank as shown in Fig. 1, whether it was to be made by hand or by machine, by using the machines that are made by the 4-One Box Machine Makers. This blank could be made on the Saranac machines providing the cleat positioning

[fol. 132] fingers were changed as they now are relative to the position of the fin.

X Q. 1122. What do you mean by "as they now are"? Do you mean that in the Saranac type machine as you observed them, the fingers are arranged the same as in the 4-One Box Machine Makers' machines?

A. I mean this: That in making the blank as shown in Fig. 1, all eight cleats of this blank fall short at each end as to the width of the sheets, and in making a blank on the Saranac machine as I saw it operated, and using the blocks that I saw in this operation, the front side of the cleat positioning finger is in a plane with the sheet positioning fin on the same block and you could not make a blank with the sheet edges protruding beyond the ends of the section where the cleats are moved forward by the cleat positioning fingers. In other words, in the Saranac type machine, the front acting surface of the sheet fin and of the cleat finger are in the same vertical plane, with the result that the end of the cleat and the edge of the sheet are aligned vertically.

X Q. 1123. You did not see any Saranac type machine, did you, which had more than two cleat pushers on a side?

A. No; no more than two on each side of each blank.

X Q. 1124. And in the plaintiffs' machine, there are four cleat pushers on each side for each blank; aren't there?

A. There are five positioning spacer blocks on each side of each blank.

X Q. 1125. Well, now, going back to the reissue patent, how would you proceed if you were going to make the blank by hand?

A. If I expected to make this blank by hand and had the workholder before me, I would simply place these box parts in the workholder as set up and staple by hand the binding wires on these box parts.

X Q. 1126. How would you position the sheets with reference to the cleat ends?

A. If I was going to position these sheets relative to the cleat ends, I would have the first section of this blank to protrude beyond the cleats one-fourth inch at each cleat end. On the second section I would have the sheets of this section to protrude beyond each cleat end the thickness of the sheets used. The same thing would be true of the

third and fourth sections as I have described it for the first and second.

I would secure the binding wires by applying staples [fol. 133] straddling the wires and passing down through the sheets and into the cleats; and I would have the space between the sheets less than the thickness of the sheets. If you took the resulting blank and bent it into box form, you would produce a correspondingly tight lap-cornered box. The binding wires would be tensioned by the act of folding the blank.

Supposing I were going to make this box blank of the reissue patent by machine, I would place these box parts in the workholder and it would be fed by the machine under the stapling heads. These box sections would be tied together by binding wires and staples straddling the binding wire, driven through the sheets and into the cleats. I would position the parts in the same relation as in the hand method that I have described. And I would get the same result as to overlapping corner and tensioning the wires.

X Q. 1134. In the portable workable type of machine, for instance like the one you saw at South Bend, which we have sometimes called the St. Joe Iron Works machine, these spacer blocks functioned in both directions, didn't they? That is, they prevented the cleat ahead from coming backward and the one to the rear from coming too far forward.

A. I would answer that by saying that for convenience sake, in setting up the spacer blocks on this workholder, the blocks were made with cleat positioning members on each end of the block, but if the cleats were placed with the rear end of the cleats against the front edges of the spacer blocks, the cleats would have no bearing or would not be engaged by the spacer blocks in front of the cleat.

X Q. 1135. Why was it more convenient to make them that way?

A. Because the first, third and fifth pairs of blocks were alike; and the second and fourth pairs of blocks were alike.

X Q. 1136. There was another reason, wasn't there, and that is that by having a block act both on the cleat ahead of it and on the cleat to the rear of it, the operator required

much less degree of care and skill in dropping the cleats in position?

A. For convenience' sake, yes; they were a good deal better to put the cleats in.

After the cleats were in place, these spacer blocks of the portable workholder machine insured against longitudinal displacement of the cleat in the workholder.

[fol. 134] I stated on my direct examination that I saw the South Bend machine, or St. Joseph Iron Works machine in actual operation to produce foldable box blanks.

X Q. 1139. They stopped the machine every time they finished a blank, didn't they?

A. They stopped the movement of the workholder every time they finished a blank, in actual operation.

And the stapling mechanism, of course, stopped also.

X Q. 1141. In the South Bend machine, if you intended always to make the same width of box blank and did not care to make the machine adjustable as to width of blank, it would serve if the gears which meshed with the racks on the under side of the workholder were simply ordinary narrow gears instead of wider gears; isn't that so?

A. As far as I can see it would not make any difference.

Going back once more to the portable workholder of the South Bend machine, after it was loaded with the sheets and cleats and the pressure bar was in acting position, the workholder could be set up on end or moved with considerable roughness without dislodging the parts.

X Q. 1143. In the Saranac type of machine, in the pre-cleating method, only four cleats are initially attached to the sheets by the box-blank machine; isn't that true?

A. I don't know what you mean by "initially," but I know that in making a pre-cleated blank in the Saranac machine that staples were driven straddle of the binding wire and through the sheets and into each and all eight cleats.

But as to two of the sheets the cleats had been attached before reaching the box-blank machine.

X Q. 1145. You have referred to the clincher blocks of some of the Saranac type of machines. These clincher blocks could be taken off, couldn't they, if the machine were operating according to the pre-cleating method?

A. No, sir; they could not.

They hold the cleats against their cleat positioning members.

X. Q. 1147. But with two of the cleats pre-cleated, they could not swing into acting position, could they?

A. The clincher block, as I saw it, was always in acting position. It was not in an acting position as to its service as a clincher block, but as I recall it I saw it performing another function, which was holding the cleat back against its positioning means.

In the pre-cleating method a clincher block would not be called upon to operate at all as a clincher block for clinching staples. It would press upon the side of the [fol. 135] cleat and thus tend to retard the action of the cleat and hold it in front of the cleat pusher. The curved end of the clincher block, as I saw it operate, always engaged against the front end of each and every cleat, and also engaged and furnished side pressure against the side of the cleat after the front end of the cleat had passed the curved end of the clincher block, and held the cleat back against its positioning means. The holding was a frictional holding.

X. Q. 1151. And if this clincher block were absent, the friction of the cleat in its supporting guide would tend to hold the cleat back in contact with its pusher, wouldn't it?

A. No, sir, because the cleats are loose in the guide. If the clincher is taken off during the intermittent step with the Saranac machine, when the chains were at rest, the rear end of the cleat would be away from the front face of the cleat positioning finger. The same retarding effect which I ascribe to the clincher blocks could be obtained by placing a flat spring at one side of the guide for holding the passing cleat against the opposite side of the guide. The same function is performed by what I have called the "detents" shown at 36 on Plaintiffs' Exhibits 16 and 17. In other words, the intermittent motion of the feed chains has a tendency to throw the cleat forward out of contact with the cleat pushing finger, and this may be overcome by a frictional retarder which may be in the form of what I have called a clincher block, as on the Conneaut machine, or what I have called a detent on the White machine; or it may be overcome by an ordinary flat

spring pressing against the side of the cleat to press the cleat against the outside of the channel.

X Q. 1156. Have you seen any box blanks made in which all of the sheets had cleats before they came to the blank machine?

A. No, sir; I have not.

X Q. 1157. You can imagine a method, however, can you not, in which four sheets with cleats already attached to them could be introduced into the blank-making machine and in that machine have the binding wires applied to them?

A. That can be; yes, sir.

X Q. 1158. And with such a method there would be no need for clincher blocks or detents, would there?

A. No, sir; not in making perfect blanks.

X Q. 1159. You have seen cleatless blanks made, haven't you? By that I mean blanks for crates in which the sheets, none of them, has any cleats?

A. I can't say that I ever did. I have seen the boxes after [fol. 136] they were made, but I can't say that I ever saw any blanks put through a machine.

X Q. 1160. Have you seen crate-making machines in operation in which the product is merely a set of sheets held together by binding wires but without cleats?

By Mr. White: This line of cross examination, beginning with X Q. 1156, is objected to on the ground that it is improper cross-examination, and on the ground that it is not an inquiry into any testimony of this witness on direct examination. Counsel is warned that if he pursues this line of cross-examination he will be making the witness his own.

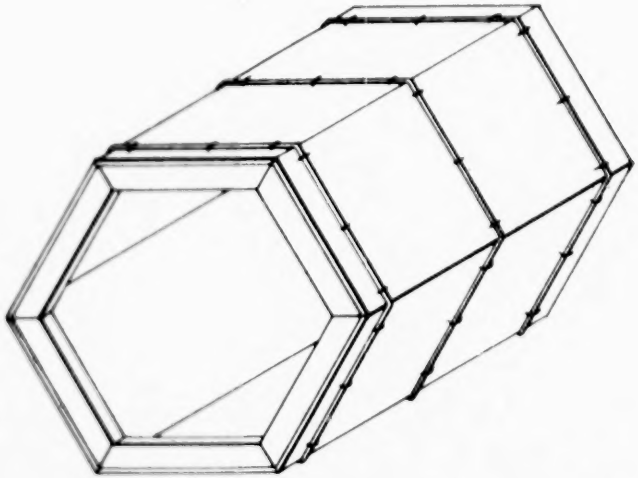
A. No, sir; not in production.

X Q. 1161. In the plaintiffs' method of manufacturing box blanks in which there are four sheets and four pairs of cleats, how many cleat pushers are there on each side of the machine?

A. Not any.

X Q. 1162. If there are no cleat pushers, what makes the cleats go forward?

A. The cleats are carried forward in a chain and held in relative position in that chain with spacer blocks.



Defendant's Exhibit 2, Drawing of Hexagonal Box Blank

X Q. 1163. Then the plaintiffs do not use cleat pushers; is that it?

A. We do not push any cleats; no, sir.

X Q. 1164. You simply carry them along on the chains?

A. On a channel-shaped chain.

X Q. 1165. Doesn't it amount to the same thing?

By Mr. White: Objected to as calling for a conclusion, and the question is indefinite. It does not inform the witness as to what counsel is inquiring into, and it does not inform the witness as to what comparison he is to make.

A. It does not.

In defendant's alternate cleated blank, there are two loose cleats put into each side of the machine for each blank. If in the Saranac type of machine four loose cleats were to be attached to the blank on each side of the machine, four cleat pushers would be necessary on each side of the machine.

X Q. 1168. We would have to have a cleat pusher for each loose cleat, naturally, wouldn't we?

A. Yes, sir.

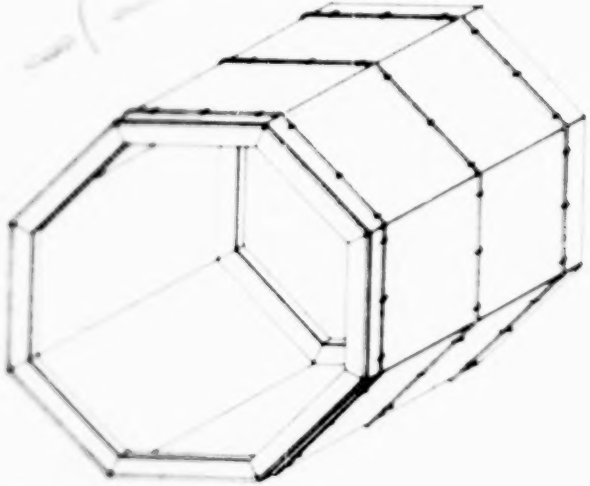
X Q. 1169. Suppose we wanted to produce hexagonal wirebound boxes in which the ends of the box would be hexagons, and there would be six sides, so to speak—to pro-[fol. 137] duce a blank like that and apply six loose cleats on each side of the machine in the blank making machine, how many cleat pushers would we need?

By Mr. White: That is objected to as improper cross-examination and not an inquiry into matters testified to on direct examination by this witness; and counsel is again warned that in asking this line of questions he is making the witness his own.

By Mr. Cox: Defendant's counsel has not replied to those objections but cannot refrain from doing so now. This witness was asked many hypothetical questions on direct, and none of them was any simpler than the one now asked. If plaintiffs' counsel will permit the witness to answer, there is no doubt but what he will be able to do so.

By Mr. White: Plaintiffs' counsel has no doubt whatever that the witness is fully able to answer the question.

(Here follows Defendant's Exhibit No. 2, side folio 137½.)



Defendant's Exhibit 3 Drawing of Octagonal Box Blank

are employed for each blank. How do you account for that? There are less separate pieces to be handled in the Saranac type of machine than in plaintiffs' machine.

A. As a matter of fact, the one who lays cleats, especially in boxes where the cleats are short, he has no time to lay more than two cleats in each section. At least, he has not a surplus of time enough to lay either side sheet. As a matter of fact, he can't get his stock in a position so that he can get hold of it in a proper manner to lay both cleats and side sheets.

Everything being equal the cleat layer would only have half as much work to do with the Saranac type as with plaintiffs' type of machine.

X Q. 1178. In the Saranac machines operating on the pre-cleating method in which two of the sheets are provided with cleats before they reach the blank machine, there were no cleat pushing fingers for the sections which had already been provided with cleats, were there?

A. There were no cleat positioning fingers on the spacer blocks at the rear of the cleats of the pre-cleated sections; but there were spacer blocks which had fins at the rear of the pre-cleated sections which fed the sheets forward, and to these sheets as they were fed forward were cleats that had been pre-attached to these sections before they were placed in the blank machine.

(Here follows Defendants' Exhibit No. 3, side folio 138½.)

X Q. 1179. These blocks that you have referred to in your last answer as spacer blocks had no contact or influence, did they, upon the cleats of the pre-cleated sections?

A. They had no direct contact with the rear end of the [fol. 139] cleats, but they were contacted with the rear edge of the sheets which, in turn, was fastened to the cleats of that section

X Q. 1180. The fact is that there was absolutely nothing interposed between the rear ends of the cleats of pre-cleated sections and the front ends of loose cleats; isn't that so?

A. Not before they passed under the stapling head. Just prior to passing under the stapling head the clincher block would hold the loose cleat against the cleat positioning finger at the rear of the loose cleat.

X Q. 1181. I may have asked you this question: By attaching cleats to all of the sheets before introduction into the blank machine, the box blank could be made with only sheet pushers and without any cleat pushers, couldn't it?

A. Yes, sir, providing the sheets were of a width to come in contact with the front and rear faces of the fins of defendant's spacer blocks.

X Q. 1182. I understand that cleatless blanks are frequently made on Saranac type machines. Have you seen the Saranac type machines make such cleatless blanks?

A. No, sir.

X Q. 1183. The Saranac type of machines about which you have testified could easily produce cleatless blanks by merely leaving out the cleats, couldn't they?

By Mr. White: Objected to on the ground that it calls for a mere conclusion and speculation of the witness.

A. All of the Saranac box blank machines that I observed, with the exception of one machine at the White Box Factory, could be used in making the so-called cleatless blanks as you have described.

X Q. 1184. In your answer to Q. 131 [ante, p. 54] you said that the South Bend machine which you saw in operation in 1906 was "just the same" as shown in patent suit No. 1,128,145. In your answer to Q. 151 [ante, p. 54] you say they are not the same, but that the South Bend machine had on the table guides for the workholder. How do you reconcile these two statements?

A. When I was asked to see this Fig. 1 in the patent in suit, No. 1,128,145, I merely took into consideration the general construction of the machine and not any details. As to the answer to the question 151 I merely said that I had never seen this machine operated without guides.

X Q. 1185. The fact is, Mr. Steele, so I am informed [fol. 140] and believe, that the South Bend machine never had a roller extending all the way across it as you have testified, but that it had pinions which engaged the racks on the portable workholder. This fact is also borne out by the photoprints which I showed you yesterday and which have been marked Defendant's Exhibits 1 and 1-a. If you will look at these Exhibits 1 and 1-a you will see that the guides are in flat contact with the top of the table, and that if there had been a wide roller extending across the top of

the table it would have interfered with these guides. I presume, testifying nineteen years or so after the fact you could easily have been misled on that point. But will you not try to refresh your memory on that and tell me whether it is not true that the toothed drivers were ordinary gear wheels and not a wide faced toothed roller extending all the way across the machine?

A. As I remember the South Bend machine, at the time when I saw it it had a long roller extending across the table top. And as to these guides that have been referred to, they were stationary on the table top and could very easily have been of a shape for the roller to miss them as they only contacted with the side of the workholder relative to the roller.

X Q. 1186. In view of what I have said, you would not like to positively go on record that that was a wide toothed roller, would you, because my information is that such roller was never used on that machine?

A. Well, I can only go on record as I remember this. I have already stated and will again, that according to my recollection, and as I saw the South Bend machine operate, it had a long roller with gear teeth, the teeth protruding above the top of the table.

X Q. 1187. Well, whether your memory is correct or not, you would be willing to state from your knowledge of mechanics, would you not, that it would be extremely poor design to make a gear wheel two or three feet long when ordinary pinions or gear wheels could be used for like purpose?

A. Relative to your question, I will say this: That it is far more convenient to have a long roller under that table to operate the workholder than it would be to have two gears, when the operator would have to climb in under that table for every different sized box he made and loosen one gear and keep it in line with the rack on the work table.

X Q. 1188. Then you would approve of such a construction, would you?

[fol. 141] A. I would not approve of such a construction now in any piece of machinery, or neither kind. At that time it was a thing used and all we knew of being used.

X Q. 1189. Referring to Defendant's Exhibits 1 and 1-a, which show the South Bend machine, or St. Joe Iron Works machine, you have testified, as far as your recollection goes,

that there was a long toothed roller extending substantially across the table for engaging with the racks on the portable workholder to advance the workholder. Will you refer to these exhibits and see if you can find that roller indicated?

A. On this Defendant's Exhibit 1 this roller in my judgment would not be shown on this photograph. It could not be seen. It was on the front of the machine. Both of these were taken from the rear of the machine. On this Exhibit 1 I doubt very much if that would show the roller if it was in there as it was in there. Exhibit 1 a does not show any roller across the table of this machine. I am not able to say when these photographs were taken or whether they were taken as I remember that machine or as I saw it in operation.

X Q. 1191. Please state whether or not you think that patent (looking again at the expired reissue patent) shows the cleats pre formed and then attached to the sheets or whether you think the cleats were formed after they were stapled to the sheets.

By Mr. Janney: That is objected to as immaterial, irrelevant and incompetent. What the patent discloses if pertinent at all, is for the court to say. The question is further objectionable in that it calls for mere speculation because the witness is not shown to know what the patent in fact discloses.

A. I have no way of telling anything about this blank only that it is a drawing of a perfect blank as I know them.

X Q. 1192. Then you don't feel competent to make any comparisons or any further statements in connection with the showing in the reissue patent than what you have given in your last answer?

By Mr. Janney: The question is objected to as stating a conclusion which is entirely unwarranted by the preceding question and answer. The next preceding question called for no comparison. The witness is entirely competent and willing to answer questions as to comparisons of definite mechanical things; but plaintiffs' counsel will strenu- [fol. 142] ously object to the witness being asked to speculate as to how any given construction was produced. If defendant's counsel wants the witness to make any comparisons, I suggest that he define the structures to be compared so that the witness can have them in mind.

A. I am not familiar with the patents, as to the different patents that have been issued, themselves.

By Mr. Janney: This line of examination, inquiring as to how the blank of the reissue patent No. 12,725 was made or may have been made, is further objected to as calling for wholly unauthoritative and hearsay conjecture, because the original application upon which this reissue was based was filed October 17, 1904, as shown by the original patent No. 799,854; and the witness has already testified that his contact with the wirebound box industry and with these particular wirebound boxes did not begin until the early part of 1906. He is clearly not qualified at all to know, and much less to speculate, upon the manner in which the blank of the reissue patent was or may have been made.

A. I have no way of telling how this blank was made.

X Q. 1193. Please read the questions and answers 61 (ante, p. 50) and 62 (ante, p. 50) of your direct testimony.

A. I have done so.

X Q. 1194. Do you wish to make any change in the answers in view of what you have stated in the last few minutes?

A. No, sir.

X Q. 1195. The cleats and sheets used on the South Bend machine were pre-formed; weren't they?

A. As I saw them, yes, sir.

X Q. 1196. Knowing what you now know with regard to the wirebound box making art, if you were asked to reproduce the blank shown in the drawings of the reissued patent, 12,725, would you pre form the sheets and cleats?

By Mr. Janney: That is objected to as wholly immaterial, irrelevant and incompetent. What is this witness' state of mind today with reference to the subject inquired about has nothing whatever to do with these issues. If the reissued box patent has any pertinency at all to the present litigation, that pertinency must rest upon the meaning of the disclosure of the patent to one skilled in the art as [fol. 143] of the date of filing of the application of the original patent. Inevitably, since Mr. Steele had no acquaintance with the art until more than a year after the original application was filed for the reissue patent, it is impossible for him to transport himself into past history for the purpose of indicating the significance of this reissued patent.

A. If I was going to make this blank by hand, it would depend on what tools I had to work with, how I would make this blank.

X Q. 1197. Then the procedure that you would follow for making this blank would depend upon the tools you had; is that it?

A. Yes, sir; to a great extent. Or if you would hand this drawing to a mechanic and ask him to make it, he might make it many different ways. The chances are that no two mechanics, not knowing anything about this art, would make it the same way.

X Q. 1198. Why do you say "not knowing anything about this art"?

A. I mean to illustrate to you that if you would hand this drawing as shown in Fig. 1 to a man and tell him to produce in box parts this blank as shown here he would proceed to make that blank, and if you would hand the same material and drawing to another man there is only one chance in a thousand that these two men would make this blank exactly the same way.

X Q. 1199. One way that he might make it would be to prepare all the cleats and all the sheets necessary for a blank and then lay on the wires and staple the parts together; isn't that so?

By Mr. Janney: I repeat here the objection last made to this line of examination. It has no possible relevancy to this case what a mechanic, skilled or unskilled, would do today to reproduce the box blanks shown in the drawings of the reissued patent.

A. The average mechanic in making this blank, as you have said, with all the parts predimensioned would have considerable more trouble in my estimation in forming those parts than he would have if he would do as the average mechanic would do—that is, to make these cleats in one continuous long strip.

By Mr. Janney: I call the witness' attention to the fact that this answer is not a direct response to the question; [fol. 144] and I ask the witness to note carefully just what the question calls for in each instance and then to confine his answers strictly to the subject matter of the question.

By the Witness: Read the question again.

(X Q. 1199 read by the reporter.)

A. Withdraw my answer and say yes, sir.

X Q. 1200. The exhibit drawings which you have had made are all quite fragmentary, are they not? That is, they do not show the assembled machine anywhere; nor do they show the supporting structures for the guides and feed machinism?

A. The majority of these drawings show the work-holding parts relative to the direction in which they are fed in the machine.

X Q. 1201. And that is about all they show, isn't it?

A. Some of them show the box parts placed in the channels or guide ways and positioned relative to the spacer blocks.

I have nowhere attempted to show the stapling mechanism, for example; nor the supporting frame or legs upon which the material guides are mounted.

In all of the Saranac type machines which I saw, the cleat guides were stationary. And the things which advanced the box material were endless feed chains moving along in or near these guides.

X Q. 1211. Is it not the practice in defendant's machines, operating as you saw them, to assemble the cleats and sheets to be stapled in guides, which guides formed an integral or component part of the machine?

A. Well, as I saw the machine operate the cleats are the only box parts that were placed in the guide way.

The sheets were placed on the spacer blocks on the endless chains.

X Q. 1213. The defendant's machines as you observed them, also have mechanism co-operating with the stapling machine to contact with the slide the cleats longitudinally in their guides under the stapling devices, haven't they?

A. They have what has been termed or known as cleat-positioning fingers that push and position the cleats relative to the sheets which are to be fastened to these loose cleats in the operation of the machine.

I have already testified that the cleat guides remain stationary and are a part of the machine.

Referring to what I call the first White machine, I call the part 36 a "detent" because it stands in the path of the cleat and retains the cleat and holds it back until it is en-[fol. 145] gaged in the rear end by the front face of the cleat positioning finger.

X Q. 1221. And as I understand you the word "detent" was one that you thought of yourself and you never heard anybody else apply that term to that device; is that right?

A. The man that operated the machine I might say [p. 149] called this part that I have named a "detent" a spring in my presence.

X Q. 1222. And he was about right at that, wasn't he? It was a spring drag, wasn't it?

A. It was a spring pressure. It was the tension on the spring that held the end of this detent against the cleat.

Cross-examination closed.

Redirect examination.

By Mr. Janney:

In the South Bend machine which I saw in 1906, as the workholder of the box blank part moved forwardly toward and beneath the stapling mechanism, it was the spacer block of the positioning block at the rear of the cleat and that held the cleats on their proper lengthwise position preparatory to the stapling operation.

On the Saranac machine, as I observed them, as already described in my testimony, it was spacer blocks at the rear of the cleats which held the cleats in their proper lengthwise position preparatory to the stapling operation.

In the Saranac machine as I observed it employing pre-coated sections, it was the spacer blocks at the rear of the section with the cleats pre-attached that held the pre-attached cleats in their proper lengthwise position preparatory to the stapling operation. The fins on the spacer blocks at the rear of the section having the cleat pre-attached, served in this manner to hold the pre-attached cleats in their proper lengthwise position preparatory to the stapling operation.

The workholder of the South Bend machine as I saw it in 1906, and as I have testified and illustrated in the workholder patent in suit, could operate successfully if it were held stationary and the binding wire were stapled thereto in the usual manner by a traveling head stapling mechanism. The workholding mechanism of the South

straddle of the binding wire and through the sheets and into the cleats.

I have personally observed in operation at least 36 such machines, machines of such description. I mean by that 36 different or 36 individual machines.

R. D. Q. 1246. How many times have you observed the operation of those machines?

A. That is hard for me to say as I have been continually with these machines for the last three years.

If the workholder of a South Bend machine were thus used in feeding the box parts by continuous, uniform and steady movement, positioning blocks at the rear of each cleat would be necessary on the workholder to maintain the cleats in their proper positions and in their proper relationship to each other.

R. D. Q. 1248. If the South Bend machine workholder were thus operated by a continuous, uniform and steady motion, and if the rear halves of the spacer blocks adjacent the advance ends of the cleats were omitted, and if the springs were omitted at the sides of the cleats, how would those omissions affect the proper individual and [fol. 149] relative positioning of the cleats and their proper motion through the machine?

A. They would not affect it.

If the Saranac machines that I have observed were equipped with suitable stapling devices, and if the work-feeding chains were moved by a continuous, uniform and steady motion instead of step by step, the Saranac work-holding mechanism would operate successfully under those circumstances. And cleat positioning blocks on the rear of each section of the Saranac machine would be necessary to hold the cleats in their proper position and in their proper relationship to each other in the operation just described. In using the Saranac machine in the operation just described, the workholder being given a continuous, uniform and steady motion, the fins of the positioning blocks at the rear edges of the sheet to which the cleats have been pre-stapled would serve to hold in proper individual and relative position the cleats of pre-cleated sections of the blanks.

In the Saranac machine having the workholding devices fed with a continuous, uniform and steady movement, it

would have no effect upon the successful operation of the workholding devices if the clincher block 36 or the detent 36 of Plaintiffs' Exhibits 8 and 17 were wholly omitted.

In the operation of the South Bend machine having the rear halves of the spacer blocks and the cleat-holding springs omitted, if the workholder were fed through the machine with a continuous, uniform and steady movement, the cleat pushers behind—at the rear ends of the cleats—would propel the cleats past the stapling point.

In the normal operation of the workholder of the South Bend machine as I actually observed it in 1906, the cleat pushers at the rear end of the cleat propelled the cleats past the stapling point.

In the South Bend machine if the side walls of the cleat channels had been cut entirely away, and if fixed flanges of the same general shape have been substituted for them, and mounted so as to be stationary on the bed of the machine, it would not have affected at all the operation of the cleat positioning devices on the South Bend machine.

If you moved the workholder of the South Bend machine past the stapling point with a continuous, uniform and steady movement, it would not affect the operation of the workholding devices if you omitted the pair of cleat spacers at the advance end of the workholder as shown at the upper right-hand corner of Fig. 1 of the workholder patent in suit No. 1,128,144.

If you moved the workholder mechanism of the Saranac [fol. 150] machine past the stapling point with a continuous, uniform and steady motion, it would not affect the operation of the workholding mechanism if you omitted the pair of blocks 11 and 12 at the advance end of the blank as shown in Plaintiffs' Exhibit No. 8 [*ante*, p. 65].

R. D. Q. 1261. As you observed the operation of the pre-cleating machines used in connection with the Saranac blank machines at some of the plants of the defendant's licensees, how many men were used in operating each pre-cleating machine, including the assembling of the cleats and sheets?

By Mr. Cox: Objected to as immaterial, as this controversy does not involve any pre-cleating machines.

A. The pre-cleated machine known as the hand-fed machine, one person laid the cleats in the channel and sheet

on top of the cleats and fed them through this machine in a step-by-step motion. The operation that I saw with this machine, the same man took the finished part from the machine on the same side of the machine on which these parts were fed. In the endless chain pre-cleating machine that I saw operate there were three persons engaged in pre-cleating side sections.

On the hand fed pre-cleating machine which I said was operated by one man, one of those machines so operated could not turn out pre-cleating machines [pre-cleated sheets] to furnish two pre-cleated sections per blank for the normal operation of one of the Saranac blank machines as I observed it.

R. D. Q. 1263. How many of those hand-operated pre-cleating machines would be required to supply the consumption of pre-cleated sections in the normal operation of the Saranac blank machine as you observed it?

By Mr. Cox: Objected to as incompetent, irrelevant and immaterial.

A. I would say this: You may be able to put more help on the hand-fed machine which would increase this machine's capacity some, but at least it would take two pre-cleating machines to furnish two pre-cleated sections for each blank on the blank machine, to furnish pre-cleated sections enough to hold the blank machine in a normal operation.

R. D. Q. 1264. In the making of pre-cleated ends for the Saranac alternate cleat type of box, how many men would be required on this pre-cleating of the ends to supply enough finished ends to keep pace with the production of [fol. 151] alternate cleated blanks on the Saranac machine, as you observed it?

A. I don't know as I can answer that question only in this way: That the pre-cleating of cleats on the end panels, as I saw the operation, is done on the same hand-fed machine as the pre-cleating of the side sections; and I doubt very much if more than two persons could work to an advantage on any one hand pre-cleating machine, and two persons on a hand-fed cleating machine could not keep up with the normal run of a box-blank and pre-cleat two cleats on each of the two end panels.

N. E. BROWN.

MACHINE FOR USE IN MAKING METAL BOUND PACKAGES.

APPLICATION FILED OCT. 29, 1904. RENEWED DEC. 29, 1918.

1,276,484. Patented Aug. 20, 1918.

4 SHEETS—SHEET 2.

Fig. 3

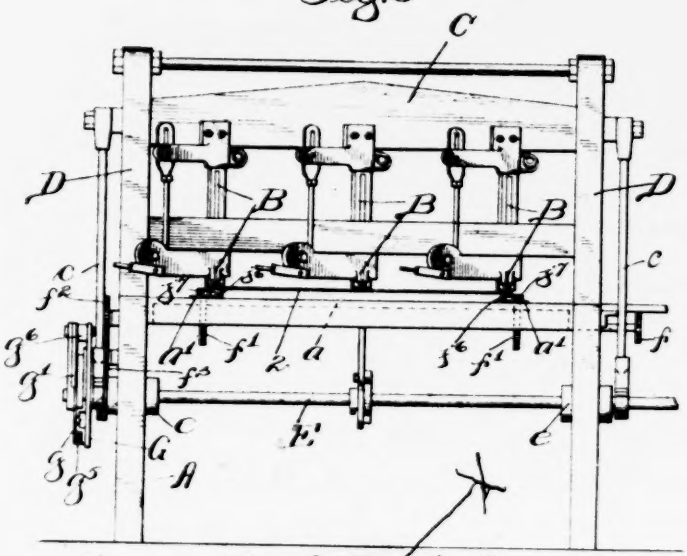
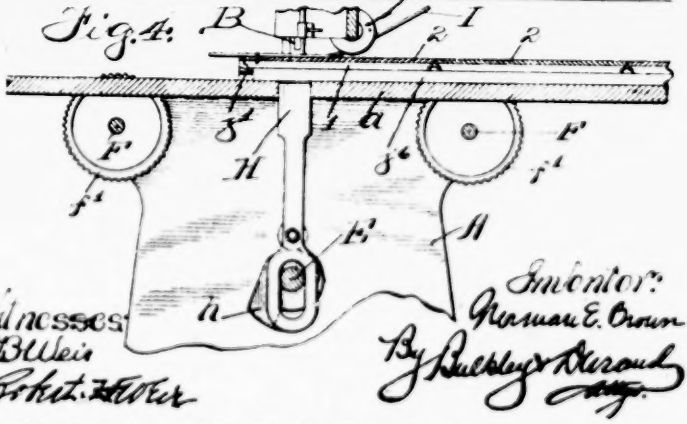



Fig. 4.




Witnesses:
H. B. Weir
Robert Walker

Inventor:
Norman E. Brown
By Bakewell & Duncan
Atty.

Plaintiffs' Exhibit No. 23. Sheet 2, Drawings of N. E. Brown Patent No. 1,276,484.

As I observed the operation of the South Bend machine, as I have testified, it is my best recollection that the workholder was fed through the machine by means of a long-toothed roller. If I should be in error as to that recollection, and if two short toothed gears were in the South Bend machine in proper position to engage with the two racks of the workholder, that difference would not have affected the operation and functions of the workholder and the rest of the machine; it would be fed the same way.

R. D. Q. 1266. In answering X Q. 1064 you referred to a "guide under which the binding wire was guided in a line so the staples would drive straddle of this wire." Please refer to sheet 2 of the drawings of the patent to Norman E. Brown No. 1,276,484, see particularly Fig. 4 on that sheet and state whether or not that drawing shows the binding wire guide to which you referred in the remark just quoted.

A. It does.

That binding wire in that figure is not indicated by any reference numeral. I have drawn a lead line from that binding wire guide and indicate it by a letter "X."

By Mr. Janney: The particular sheet of drawings just marked by the witness is offered in evidence as Plaintiffs' Exhibit No. 23.

(Here follows Plaintiffs' Exhibit No. 23, side folio 151½)

R. D. Q. 1269. In the South Bend machine as you observed it, what was the normal clearance between the bottom of this binding wire guide which you have marked X in Plaintiffs' Exhibit 23 and the top surface of a blank passing under the stapling point?

A. I don't know as I could say as to what exact clearance there was under the binding wire guide, but it has been the practice, and it has been on every machine of the 4-One Box Machine Makers, including the Brown machine, or the South Bend machine, that the wire guides are as close to the top of the side sheets as it is possible to oper-[fol. 152] ate with, and that clearance may be possibly 3/32 inches.

I don't know as you have to make an allowance of a clearance there for normal operation, only that it would

have a tendency to drag the sheets back if it struck the sheets, laid on the sheets at all times, but the wire must be laid on the blank that at the time the staple is driven, and unless the binding wire guide had laid the wire that on the sheet before the staple was driven, there would be a hump in the wire between each and every staple.

Supposing a sheet of abnormal thickness passed under the binding wire guide, it would just make a crease in the sheet. The rollers on our stitchers just make two creases across that sheet. I have observed actual instances of that on every day's operation on each and every machine.

Referring to the blank machine patent in suit No. 1,128,145 and referring to Fig. 1 thereof, these binding wire guides that I have already referred to are illustrated in that figure. Those binding wire guides are indicated by the numeral 52 in that figure. If you wanted to lift up the workholders or box parts that were positioned underneath those binding wire guides 52, you could only lift them the clearance between the top of the sheet and the roller, whatever that might be. If they had a 3 32 inch clearance and you run a 3 16 inch piece on, you might lift them 1 16 inch more than you could with a $\frac{1}{4}$ inch piece under there, which would be approximately 3 32 of an inch.

If something occurred to lift the workholder or a box part on the workholder upwardly to the extent of 3 32 inches or thereabouts, it would not affect at all the operation of the machine.

R. D. Q. 1277. If something occurred to lift the workholder or a box part upwardly 3 32 of an inch or thereabouts, as just described, how would that affect the ability of an operator at the end of the machine to steer the workholder properly through the machine without the assistance of guides on the bed of the machine?

A. Well, I have never seen that done. I have never seen them feed that through there, but I have no doubt in my mind but what it can be done because the same instance is done with making wirebound boxes today, or practically the same.

R. D. Q. 1278. How would the operator's ability to do that be affected by the lifting up of the workholder or a part of the blank to the extent of about 3 32 of an inch? [fol. 153] A. It would be lost. He would never know anything about it.

R. D. Q. 1279. I am not sure that I understand just what you mean by your last answer. I wish you would explain that a little more fully. I do not know whether you mean that the blank would be lost or what.

A. If the binding wires would get caught on the reels or spools and have a tendency to raise the box parts up against the wire guides it would not affect the man feeding these box parts under the stapling heads.

R. D. Q. 1280. On your cross-examination after some discussion about cleat pushing in X Qs. 1161, 1162, 1163 and 1164, you were asked at X-Q. 1165, "Does it amount to the same thing?" and you replied "It does not." I am not sure that I understand what you had in mind when you said in effect it does not amount to the same thing. I wish you would make it clear just what you meant, and if you like I suggest that you read the cross-questions that I referred to.

A. As I see it here I meant just what is said, that the mechanical mechanism of the cleat pushers or cleat spacers on the plaintiffs' machine were not like the ones on the Saranac machine mechanically. They were not built alike mechanically. The functions of both of these blocks were exactly the same, but they were not built alike mechanically, and that is the answer that I made.

Redirect examination closed.

Recross-examination.

By Mr. Cox:

R. X Q. 1281. Suppose in a workholder like the one shown in the patent in suit, 1,128,144, the rear of a spacer block was cut away, what would position the cleat longitudinally in the workholder?

A. The cleat would be spaced against the front end of the spacer at the rear end of the cleat.

R. X Q. 1282. You say the cleat "would be spaced." What would cause it to be thus spaced?

A. It is the way you lay it in the chain in the workholder.

R. X Q. 1283. In other words, it depends on how the operator puts the cleat in the workholder?

A. Yes. He lays them in there with that end back against the spacer block, against the positioning blocks.

R. X Q. 1284. If you were careless and placed the cleat end with its forward end in contact with the cut away end [fol. 154] of the spacer block ahead, then the resulting blank would be imperfect, wouldn't it?

A. Well, if a man was making blanks and was that careless he might get a whole section or all the side sheets off entirely.

R. X Q. 1285. Then if the rear of a spacer block were cut away it would be the operator who determined the position of the cleat longitudinally and not the workholder; isn't that so?

A. Why, the man that we term "operator" hasn't anything to do with the positioning of the stock in the workholder.

R. X Q. 1286. Then if the rear of a spacer block were cut away it would be the stock feeder who determined the position of the cleat longitudinally and not the workholder; isn't that so?

A. No, sir.

R. X Q. 1287. You have just said that the spacer block would not do it unless the stock feeder placed the cleat against the spacer block, haven't you?

A. The spacer block was fixed to suit the blank being made, and the stock feeder placed the cleat and box parts in this workholder, as he was ordered to by his foreman, against the blocks. That is, the rear end of the cleats against the front faces of the blocks. That would be the operation as I see it.

R. X Q. 1288. But the operator could easily misplace the cleat in the workholder, or the workholder patent in suit, couldn't he?

A. Yes, he could misplace it, but it would be inspected by the one who laid the sheets on, and it has a double inspection.

R. X Q. 1289. Then still assuming the back of one of the spacer blocks to be cut away, it is the stock feeder who determines the position of the cleat and not the workholder; isn't that true?

A. No, sir; not as I see it. The spacer blocks are fixed and determine it relative to the blank.

R. X Q. 1290. But suppose he does not place it in contact with the front of the spacer block at the rear but in contact

with the back of the spacer block in front which has been cut away?

A. Suppose that the man tells him to drive staples and he drives nails, that is the same identical thing.

R. X Q. 1291. That is your opinion, is it?

A. What is my opinion?

R. X Q. 1292. That driving a nail and a staple is the same as misplacing a cleat in a former?

[fol. 1551] A. Relative to a man being mistaken as to his job, it is.

The title of the patent 1,128,141 says here, "R. G. Inwood & P. C. Lavenberg, Combine Carriage and Former for Wire-bound Box Machines, application filed Oct. 14, 1904."

R. X Q. 1293. Do you understand what it means by "Combined Carriage and Former"?

A. Well, I don't know what this fellow means. All I am telling you is as I saw this workholder in operation and this supposed method of making boxes, that can be done.

R. X Q. 1296. No, that isn't what you have told us. You have answered questions assuming that the back of the spacer blocks were cut away. Also that the detents, as you call them, and ejector blocks, were absent. Also side guide absent. And in fact you have promptly answered at least two dozen questions assuming formations that I have never seen represented anywhere. So it is not true that you are telling us only what you have seen. Now, I am asking you what would prevent the misplacing longitudinally of a cleat in a workholder in which the back of the spacer block at the forward end of the cleat was cut away? Please answer that question.

A. There isn't anything to prevent it, only the actual movement of the stock feeders.

R. X Q. 1297. Then if the rear end of the spacer blocks in the workholder of the workholder patent in suit should be cut away the formation of the blank would depend, so far as the longitudinal position of the cleats is concerned, upon the stock feeder rather than upon the workholder itself; isn't that so?

A. No, sir.

R. X Q. 1298. What would the position depend on?

A. On the position of the front faces of the positioning

A. In a step-by-step feed the starting and stopping, the intermissions between the forward movement of the workholder would have a tendency to displace the cleats as to the rear ends of the cleats and the front edges of the cleat positioners, unless these springs were in inside walls of the workholder and pressed against the inside face of the cleats, this pressure holding them with their rear ends against the front faces of the cleat positioners.

Now, in a forward movement of the work, that has not been interrupted by starting and stopping, there is no movement in this chain to disrupt the position in which the cleats were placed against the cleat pushers.

R. X Q. 1309. Do you regard the rear ends of the spacer [fol. 158] blocks in the workholder patent in suit as mere unnecessary surplusage?

A. I wouldn't say that. They are a convenience in the operation of this machine.

R. X Q. 1310. And in that sense they increase the efficiency of the machine, don't they?

A. Yes, sir.

Deposition closed.

(By stipulation of counsel, witness' signature is waived and the notarial certificate of Special Examiner is waived.)

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[fol. 159] By agreement of counsel, and pursuant to the stipulation heretofore made of record and dated May 19, 1925, plaintiffs' counsel, under paragraph 7 and the subparagraphs thereof of said stipulation, offers in evidence the following:

1. From the record in the United States District Court, for the Northern District of Illinois, Eastern Division, in Equity No. 2689, Wirebounds Patents Company and 4-One Box Machine Makers, plaintiffs, v. H. R. Gibbons Box Company, defendant:

a. Certain parts of the deposition of Arthur S. Browne on plaintiffs' opening case, are offered in evidence as follows:

Arthur S. Browne, being duly sworn, deposes and says as follows:

1. I reside at Washington, D. C. My profession is that of a patent and mechanical expert. I was graduated from Dartmouth College in 1881, and for the last forty-years have been engaged in my present profession. I have testified as an expert witness in more than 500 patent suits in the United States courts.

2. I have read and understand the patents here in suit, namely:

Inwood & Lavenberg, Carriage and Former patent No. 1,128,144, February 9, 1915.

Inwood & Lavenberg, Machine patent No. 1,128,145, February 9, 1915.

Inwood & Lavenberg, Method patent No. 1,128,252, February 9, 1915.

3. I have been familiar with these patents and with the structures and method therein disclosed for several years. I testified as an expert witness on behalf of the present complainants in a suit against th Chicago Mill & Lumber Company, in the United States District Court, for the Northern District of Illinois, Eastern Division, which was decided by his Honor, Judge Samborn, May 23, 1916, the opinion appearing at page 929 of Volume 238 of the Federal Reporter. In that suit the Inwood & Lavenberg reissued box patent [No. 12,725] was involved, and in the study of that patent, I became familiar with the machines used and method practiced by the complainants in the manufacture of such boxes.

[fol. 160] 4. I have visited the factory of H. R. Gibbons Box Company, the defendant herein, located at 1210 West Lake Street, Chicago, Illinois, and have examined the machines there employed for the manufacture of wirebound boxes. I there witnessed the defendant's method of making the boxes and also examined numerous completed boxes. I saw at the defendant's factory two machines for making wirebound box blanks, only one of which was running during my visits. Each of these machines had on it a name-plate with the following inscription: "Property of Saranac Automatic Machine Corp., Benton Harbor, Michigan. Patented."

Box Patent No. 12725

5. The drawings of this patent show the box blank and the completed box. The box material (excepting the

cleats) is thin veneer, and much material can be utilized which would otherwise be wasted or which would be of inferior quality for other purposes. The box consists of four sheets of veneer for the top, bottom and sides; eight cleats, four at each end of the box; and two box ends fastened to the cleats. The parts of the box are bound together by encircling wires which are secured to the veneer sides and to the cleats by staples straddling the wires and driven through the veneer sheets into the cleats. The wires extend beyond the terminal box sides and the box is closed and all parts bound securely by twisting together these wire ends.

6. This box has certain important characteristics:

A. The foldable box blank is wirebound; that is to say, the different sections of which the blank is composed are united together by binding wires, and in the completed box the ends of these binding wires are connected together, so as to circumferentially bind the whole box together, this being the significance of the "wirebound" characteristic of the box.

B. The box blank comprises four sections, which are independent of each other, except for the uniting wires and each of these sections comprises side sheet matrial and two cleats secured thereto, and in the completed box each of these four side sections has the capacity of movement longtitudinally relatively to the adjacent sections, without [fol. 161] disrupting the integrity of its own elements, consisting of the sheet material and the two cleats.

C. The sheet material constituting the sides of the box projects beyond the cleats sufficiently to enable the sheets to overlap each other, so as to constitute a tight box.

D. The sheets are straight-edged, thus not only contributing to tight joints, but also tensioning the wires.

E. The tensioning of the wire thus obtained not only holds the four sides of the box closely and tightly together, but it also has the important effect of utilizing the lateral flexibility of the wire, in permitting the side sections to move relatively to each other, while at the same time utilizing the tensile strength of the wire in resisting any distortion of the box under diagonal strains.

The ultimate strength of the Inwood & Lavenberg box is dependent upon the wires. Owing to the tensioning of the wires at the corners of the box, this strength is utilized to its full capacity. This will be readily understood by reference to an ordinary nailed box. When such a box is subjected to diagonal strains, the tendency is to distort and disrupt the box, either by pulling out the nails or by disrupting the box material at the nail holes. This is avoided in the Inwood & Lavenberg box, because the wires themselves withstand the strains and the box can be distorted to the breaking point without disrupting the union between the side material and the cleats, because the side sections can slip on each other, leaving the strains to be borne by the wires. Consequently, the box can be materially distorted, and nevertheless, after the distorting strain has ceased, the box can resume its original shape and still be an efficient carrier for its contents. Owing to the tension of the wires at the corners, the box is stiffened in the first instance, so that ordinary strains will be withstood, without any distortion of the box; and then, if the strain is increased sufficiently to distort the box, the wires will hold the box together, and the side sections will slide without disrupting.

The strength of the box depends upon the wires and not upon the wood materials. The wires extend over the corner edges of the box and otherwise the veneer sides are not connected together and can slide relatively to each other at the corners the strain being taken by the wires.

[fol. 162] Defendant's Box

7. Defendant has made two varieties of boxes. One of the characteristics of the box of the Inwood & Lavenberg reissued patent is that the side sheets overlap each other, as stated under clause C, paragraph 6, above. Some of the defendant's boxes have been made (as I have been advised) with this overlapping feature.

The boxes which I examined at the defendant's factory on my visits had been made without the overlapping feature.

In the defendant's boxes which I examined, the tensioning of the wires was evident as exhibited by the wires sinking into the edges of the side sheets.

In both styles of defendant's box, the sides consist of cheap thin material. There are four cleats at each end of

the box; there are two ends each secured to corresponding cleats; and the sides and cleats are joined together by encircling binding wires secured to the sides and cleats by staples straddling the wires and driven through the sides into the cleats. The box is secured by twisting the free end of the wires together.

Carriage and Former Patent in Suit, No. 1,128,144

8. The patents in suit on the carriage and former, the machine, and the method of manufacture are closely related. The carriage and former patent No. 1,128,144 discloses work-controlling means used in assembling box parts to be folded and secured together in making wire-bound boxes.

The Inwood & Lavenberg machine patent No. 1,128,145 illustrates the same work-controlling means and sets forth a complete machine for binding and uniting together box materials as assembled in the work-controlling means.

The method patent in suit, No. 1,128,252, shows the same work-controlling means as patent No. 1,128,144, and sets forth the method in making the boxes which may be carried out when using such work-controlling means.

As the same work-controlling means is disclosed in all three of these patents, I will consider it first.

9. In order to make such a box as is shown in the box patent in suit in a rapid and economical manner, it is important, in the first place, that the previously formed cleats and side material should be readily assembled in exact position relative to each other, and [fol. 163] should be maintained in their correct assembled relation during the attachment of the wires to the side-sheets and the cleats by the staples. For the sake of economy, it is important that the assembling of the cleats and box sides should be done by unskilled labor. In box factories which I have visited where plaintiffs' machines are used, and also in defendant's factory, this work is rapidly done by girls and youths, little training being required to enable them to perform their duties.

10. The work-controlling means shown in Patent No. 1,128,144, comprises positioning means to receive the cleats in pairs and end to end; spacers which determine the correct longitudinal positions of the cleats relative to each

other so as to insure their proper relations in the completed box; and means to position the side sheets in proper relation to the cleats and to maintain the sheets in place directly above the cleats.

11. As shown in Fig. 1 of the drawings of this patent, there are two parallel channeled bars to receive the cleats. These channeled bars are adjustably spaced apart depending upon the length of the box to be made. As shown in Fig. 1, the illustrated carriage has its channeled bars long enough so that each can receive four cleats disposed end to end. Each channeled bar has spacers 6, which are adjustable lengthwise of the bar to accord with the desired dimensions of the box. These spacers properly locate the several cleats relatively to each other (having in view the size of the completed box), and they also advance and feed the cleats along during the application of the wires and staples. The unskilled attendants quickly place the cleats within the channels between the spacers.

12. The veneer sheets are placed over the cleats and are maintained in their place by means of the rod 14, shown at the left of Fig. 1. This rod 14 is connected at opposite ends to pivoted arms 12. As shown in Fig. 1, this rod 14 is out of the way so as to permit the insertion of the cleats and the placing of the side sheets. After this has been accomplished the rod 14 is swung over to the position shown in Fig. 6, thereby maintaining the side sheets in the proper plane relative to cleats. The pivot arms 12 determine the correct relation between the side sheets and the cleats and also insure the feed of the sheets concurrently with the cleats during the attachment of the wires.

13. This patent No. 1,128,144, as well as the machine patent, and the method patent in suit, shows the carriage or work-controlling means just large enough for [fol. 164] a single box-blank; and this carriage is detachable from the machine so that it can be loaded when so detached. The machine patent in suit, beginning at page 3, line 106, says:

"We wish it to be understood that this invention is not to be limited to the use of removable carriages or formers such as described, and which are in the nature of adjuncts applicable to the wire-feeding and stitching machine. Any

means for positioning the separate parts of the blank material in proper relation, as broadly defined in the claims, may be substituted for the formers, or carriages, described whether removable from and replaceable in the machine, or otherwise."

Complainants' commercial machines as used now, and also as used when I first became familiar with them over seven years ago, do not have the removable and replaceable carriages; but instead use endless feed chains carrying the pushing spacers for the cleats and also pushers for the side sheets.

Machine Patent in Suit No. 1,128,145

14. The channeled cleat positioning bars of the carriage have rack-teeth on their lower faces as shown in Fig. 2 of patent No. 1,128,144, and also in Fig. 1 of the machine patent No. 1,128,145. The machine has a bed-plate upon which the carriage is placed. The bed-plate is slotted to receive two toothed rolls 38, which are adapted to engage with the rack-teeth on the carriage bottom, as shown in Fig. 1. These feed rolls 38 are fed step by step by the automatic drive mechanism illustrated. Accordingly, when the carriage is placed on the machine in engagement with the first feed roll 38, as shown in Fig 1, the carriage is advanced intermittently until it passes beyond the second feed roll 38, shown on the discharge side of the machine in Fig. 2.

15. The wires are carried on spools as illustrated in the drawings, three spools being shown for the attachment of three wires, one along each row of cleats and the third wire along the middle of the box being attached to the side sheets only

Each wire extends from its reel 51 to a guide roll 52, immediately above the plane of the side sheets. Each wire extends into the vicinity of a staple driver, there being a separate staple driver for each wire.

[fol. 165] 16. As the side sheets and cleats are intermittently guided through the machine, the staples are automatically driven so as to straddle each binding wire, and the staples which straddle the binding wires at the ends of the box-blank are driven through the side sheets into the cleats, securing the side sheets to the cleats, and the successive side sheets are connected together.

The binding wires are fed along by the drag of the box-blank upon them; and the ensuing resistance upon the box-blank results in keeping the rear ends of the cleats in contact with the spacing and feeding blocks behind them, thus insuring the maintenance of the cleats in their proper relative positions.

17. The two feed rolls 38 are located at opposite sides of the staplers and the feed rool, which is at the discharge side of the machine (Figs. 2 and 3), carries the completed blank beyond the staplers, thereby producing lengths of unattached wire beyond the rear of the blank preparatory to starting the attachment of the wires to the next following blank. The successive box-blanks are thus connected by the binding wires, with space between the neighboring ends of the blanks providing sufficient length of wire so that when cut the ends of the wires project beyond the ends of the blank sufficiently to provide for the twisting together of the ends of the wires to complete the closure of the box.

18. It is desirable that the staples should not be driven close to the edge of the side sheets, but at some distance therefrom, as indicated in Fig. 3 of the box patent No. 12,725, so as to allow for the relative longitudinal shifting of the adjoining edges of the side sheets to each other. In order to insure the correct registration between the leading edge of the box-blank with the staple mechanism, a hand-controlled auxiliary feed for the blank carriage is provided, as described in the specification of the machine patent, beginning at line 61, page 2. This auxiliary feed is effected by the horizontal hand lever 44, shown in Figs. 1 and 2, by means of which the carriage can be fed forward, by the attendant, as well as by the automatic feed.

[fol. 166] Method Patent in Suit, No. 1,128,252

19. This method patent sets forth the manner in which the wirebound boxes are made and the method is carried out by the employment of the work-controlling means illustrated in the method patent as well as in the carriage patent in suit No. 1,128,144. The method patent, beginning at page 1, line 12, says:

"This invention relates to the manufacture of wirebound boxes and pertains more particularly to methods of making wirebound boxes, box blanks, or blank sections by approximately assembling and securing together box parts comprising side material in the form of a sheet or sheets or strips, separate or individual cleats, and fastening means such, for instance, as staples which may be driven astride of binding wires and through the side material into the cleats."

20. In thus making a box, the side cleats are first individually completed and the side sheets are also individually formed of the proper dimensions for the box. It is not essential that each side be composed of a single sheet, but may be of several small pieces, the small pieces going to make up a single side of the box, being of the appropriate dimensions.

21. These previously formed individual cleats and the previously formed side sheets are assembled together. That is to say, two of the cleats are placed parallel with each other and the corresponding side sheet is appropriately located with respect to such pair of cleats.

22. The side sheets and the cleats for the different sides of the box are so assembled with respect to each other that when fastened and wired together the blank can be folded and the folded sections will be appropriately located with respect to each other so as to furnish the four sides of the box.

23. The side units of the box consisting of the side sheets and the cleats are secured together by wire binding, which extends completely across the several side units. The wire binding is fastened to the box sides by means of straddling staples or fasteners which are driven through the side sheets and into the cleats. Accordingly, the wires are secured to the sheets and the sheets to the cleats, and also the several sides of the box are connected together. The straddling staples hold the wire frictionally in place, but [fol. 167] permit the wire to slip in case of unusual strain on the box.

24. The wire binding which connects the several sides of the box is laterally flexible by reason of the connection of

the wire to the several side units by staples located some distance from the edges of the side units. This connection permits the wires to flex so as to accommodate the relative shifting of the separate meeting edges of the side sheets.

25. The connected side units are folded into box form and the ends of the box are secured to the cleats. The box is completed and secured by twisting the free ends of the wires together. This completes the continuity of the wire binding which then encircles the box.

As the result of this method of manufacture the tensile strength of the wire resists the longitudinal shifting of the meeting edges of the side sections of the box and the strength of the box is due to the wires. In case of excessive strain on the box tending to shift the side sections relatively to each other, the wires can creep under their frictional fasteners, thus relieving the wire of some of the strain and at the same time converting the strain on the wire from a shearing one to one which is lengthwise of substantial portions of the wire.

### Defendant's Manufacture

26. In the manufacture of its boxes, the defendant departs from the order of steps performed by Inwood & Lavenberg in that the defendant does not fasten two pairs of its cleats to the corresponding two sides of the box until after the blank constituting the four sides of the box has been folded into box form. The defendant's procedure is like that disclosed in the Craig patent No. 1,208,297, December 12, 1916, to which, for convenience, I will refer.

27. As shown in Fig. 1 of this Craig patent the defendant assembles a pair of previously formed cleats in connection with the first and with the third previously formed side sheets of the box and does not assemble at the same stage the cleats with the second and fourth side sheets. But, preparatory to the stapling, the defendant does assemble its four side sheets in proper relation to each other, and it assembles two pairs of the cleats in proper spaced

relation to each other and in proper position relatively to the overlying side sheets.

28. The defendant then secures the four side sheets together [fol. 168] and the odd numbered side sheets to their cleats by means of binding wires and staples which straddle the binding wires. As shown in Fig. 1 of this Craig patent, the staples straddling the binding wire are driven through the first and third side sheets and into the cleats beneath, thus securing these side sheets and cleats together. Likewise, the straddling staples are driven through the even number side sheets (the second and fourth) and are clenched on the under side thereof.

29. The result of this procedure is to form the blank shown in Fig. 1, with the four side sheets connected together and with cleats attached to two only of the side sheets; whereas, at this stage in the plaintiffs' manufacture, a similar blank is formed but with the cleats attached to all four side sheets.

30. In the meantime, the defendant, as a separate operation, has attached to each one of its box ends two side cleats, as shown at 12, 13, in Fig. 2 of the said Craig patent. The blank of Fig. 1 is folded into box form in connection with the two cleated ends, thereby bringing into correct association the two uncleated sides 2 and 4 of the blank shown in Fig. 1 with the cleats 13 and 12, respectively, of Fig. 2. The complete assemblage is shown in Figs. 3 and 5. At this stage of the operation all four side sheets have been properly assembled with the four pairs of cleats; but as yet the side sheets 2 and 4 have not been secured to their respective cleats 13 and 12.

Accordingly, the defendant subjects the box to a second stapling operation by means of which straddling staples are driven across the binding wires through the side sheets 2 and 4 and into the respective cleats 13 and 12 at the opposite ends of the box.

31. Finally the box is closed by twisting the free ends of the binding wires together thus completing the continuity of the wire binding and producing a box in all substantial respects identical with that produced by following the specific procedure set forth in the method patent in

suit No. 1,128,252. Defendant has varied the procedure in the method of manufacture simply by postponing the assemblage and attachment of two pairs of cleats to a later stage than in the particular method of the patent in suit with the consequent necessity of doing its stapling at two different stages instead of all at one consecutive stage as in the method patent in suit.

32. In carrying out its method the defendant follows other details of plaintiffs' manufacture. That is to say, defendant employs straddling staples which frictionally [fol. 169] hold the binding wires. The staples nearest the longitudinal edges of the side sheets are placed a substantial distance from such edges so as to leave an unconnected strand of binding wire extending across the meeting edges of neighboring sides of the box. In case, therefore, the sides of the box slip longitudinally in respect to each other under great strain the binding wires may creep under their frictionally holding staples, so that these sections of wire extending across the meeting edges of the box sides shift to angular positions with respect to the box side edges before the final tension of the binding wires is brought into play. Thus the ultimate strain on the wire is not a shearing strain but is substantially lengthwise of this edge bridging section of the binding wire.

33. Defendant's variation in the stage at which the similar operations are carried out does not make any substantial difference in the product.

### Defendant's Work-Controlling Means

34. In order to explain defendant's work-controlling means, I have had drawings made of the same under my supervision. These drawings are marked "Plaintiffs' Exhibit, Drawings of Defendant's Machine." There are two sheets of these drawings. On sheet 1, Fig. 1, is a perspective view of the work-controlling means; Fig. 2 is a side view; and Fig. 3 is an enlarged cross-section. On sheet II, Fig. 4 illustrates the feeding mechanism. Defendant conveys its cleats and side sheets through the machine by means of two endless travelling chains, A and B. The two chains are parallel with each other and can be adjusted to and from

each other in accordance with the length of the box desired to be made. Each chain carries spacing and pushing blocks C for the cleats and for the side sheets. The machine is large enough and the chains long enough to carry several sets or groups of spacing and pushing blocks. Each set or group of these blocks suffices to carry a single blank through the machine.

35. The set of blocks for a single blank comprises (for each chain) four spacing and pushing blocks, which are adjustable lengthwise of the chain to accord with different sizes of boxes. The advance block $C'$ of each chain has two pushers, one, D, for a cleat, and the other, E, for a side sheet.

The next following or second block $C^2$ of each chain has [fol. 170] a pusher E for a side sheet only. It has no pusher for a cleat.

The next following or third block, $C^3$, has two pushers, one, E, for a side sheet and one, D, for a cleat. The last or fourth block, $C^4$, has a single pusher, E, for a side sheet. It has no pusher for a cleat.

Thus the traveling chains are equipped with spacing and pushing blocks adapted to feed two pairs of cleats and four sheets in the relation to each other shown in Fig. 1 of the Craig patent No. 1,208,297.

Ahead of each advance pushing block $C'$ is an adjustable sheet positioner F, having a projection G, which gauges the position of the leading edge of the first side sheet.

36. Co-operating with each chain is a channel to receive the cleats end to end in a row and to space apart the cleats for one end of the box from those for the other end of the box. Each channel comprises a fixed outer side wall H and a fixed bottom I.

37. When one of the defendant's machines is at work, boys place the cleats and side sheets in the machine in proper assembled relation. For each box blank, two cleats are placed in each channel in front of the respective pushers D. This insures the proper endwise relation of the two cleats at each end of the box; and, likewise, the proper relation between the two rows of cleats for the opposite ends of the box. The side sheets are placed in position in front of their respective spacing pushers E, E; the first and third

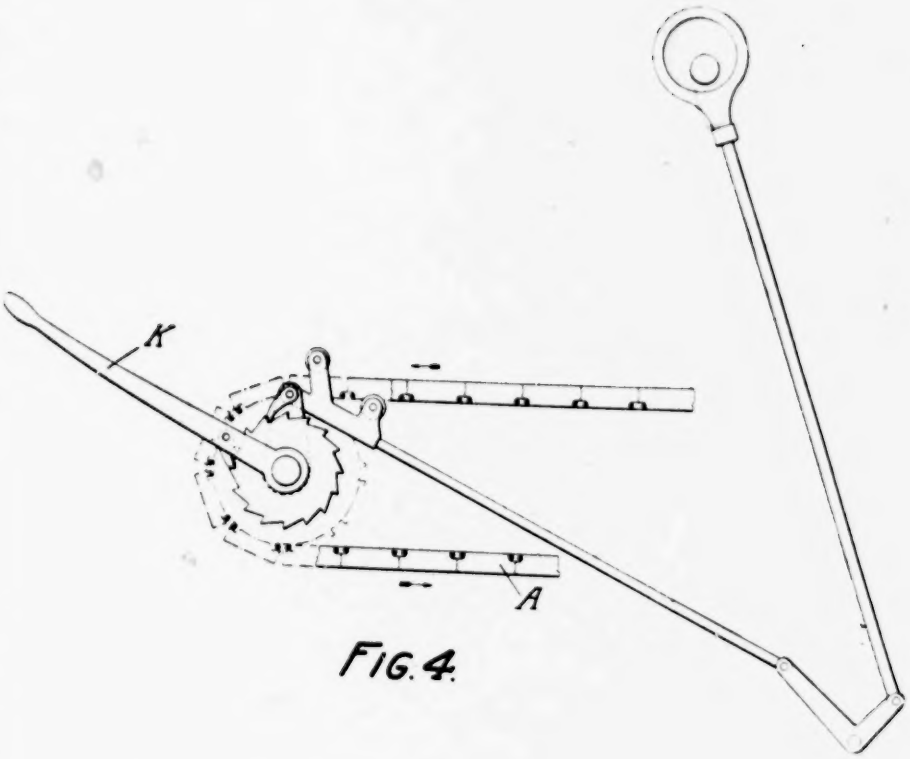


FIG. 4.

Plaintiffs' Exhibit No. 10-A, Drawing of Defendant's Machine, Sheet II.
(Reproduction of Plaintiffs' Exhibit No. 9 in the Gibbons Suit.)

sheets being placed above the cleats beneath, while the second and fourth side sheets have no cleats beneath them.

38. The feed chains travel step by step ahead during the assembling of the cleats and side sheets. As the side sheets are fed along they pass beneath presser feet J (Fig. 2), which maintain them in their proper plane relative to the cleats preparatory to the stapling.

Plaintiffs' Exhibit No. 10, Drawings of Defendant's Machine, Sheet I (Reproduction of Plaintiffs' Exhibit No. 9 in the Gibbons Suit) omitted; printed side page 70 ante.

(Here follows Plaintiffs' Exhibit No. 10a, side folio 170b)

Defendant's Machine

39. The defendant's machine is equipped with an automatic drive for feeding the chains along step by step, as illustrated in sheet II, Plaintiffs' Exhibit, Drawings of Defendant's Machine. It also has wire reels for the binding wires, and a guide for each binding wire immediately in the vicinity of the appropriate stapler. The binding wires are [fol. 171] fed solely by the drag of the advancing box blank, thus insuring the contact of the side sheets and cleats with their pushers during the stapling operation, and hence their continued proper relation to each other. There are as many staplers as there are binding wires; and, as the box blank is fed step by step along, the staples are driven.

40. The different sets or groups of spacing and feeding blocks for successive box blanks are so arranged on the chains that a gap is left between successive blanks. This gap is bridged by the binding wires. The binding wires are automatically cut between successive blanks, thereby leaving the binding wires projecting from each end of the blank, to be subsequently twisted together in completing and closing the box.

41. In order that the initial staples may be driven in the desired position relative to the leading edge of the blank defendant has a supplemental hand feed, by means of which the feed chains can be advanced irrespective of the automatic feed. The handle for this auxiliary feed is shown at K in Plaintiffs' Exhibit, Drawings of Defendant's Machine.

42. From the foregoing description it will be given that there are substantial resemblances between plaintiffs' method, work-controlling means and machine and those of the defendant.

43. In manufacturing a box both plaintiff and defendant perform the following acts.

A. Each previously forms its cleats and side sheets.

B. Each assembles two of the cleats in conjunction with the material constituting a side sheet and in proper relative position to be fastened together. Plaintiff assembles all the side units of his box (each side unit consisting of a side sheet and two cleats) before the blank is folded into box form; whereas, defendant postpones the assembling of two pairs of cleats with the corresponding side sheets, until the blank is folded. Both, however, do assemble the four pairs of cleats and the four side sheets in proper relation to each other so as to constitute a box.

C. Each connects the four side units together by means of binding wires.

[fol. 172] D. Each connects a binding wire to the side sheets and to the cleats, by means of straddling staples driven across the binding wire through the side sheets and into the cleats; thereby connecting sheets and cleats together as well as the several side units together. Again, here is a difference, in that the plaintiff does this stapling in one consecutive operation, whereas the defendant divides the stapling into two operations, one while the blank is in the flat and the other after the blank has been folded into box form.

E. Each completes and secures its box after the blank has been folded into box form by connecting the free ends of the binding wires together to as to make a continuous wire binding around the box.

F. Each blank is wired by both parties at such points relatively to the longitudinal corners of the box that there is a substantial length of unconnected binding wire extending across the corner line between adjacent box sides, the

attaching staples securing the binding wires against lateral displacement under ordinary strains. This way of connecting the different side sections of the box permits them to shift longitudinally at their meeting edges while the wire binding bends and resists the shifting by its tensile strength.

G. Nevertheless, the straddling fasteners or staples (which each uses) hold the binding wires frictionally so that, in case of abnormal strain, the wires can creep under the staples so as to still further yield before being called upon to exert their full tensile strength in resisting further deformation of the box.

44. Likewise, the work-controlling means employed by both plaintiffs and defendant are similar in important characteristics, namely:

A. Each has two parallel channels to receive two rows of cleats disposed in line with each other, and not only positioning the cleats in each channel, but also spacing the two rows of cleats apart a distance corresponding to the length of the box.

B. Each has cleat spacing means, which spaces the cleats at proper distances apart, so that when the cleats are subsequently attached to the side sheets and the blank is folded the cleats will occupy their proper positions in the completed box.

[fol. 173] C. These cleat spacers are adjustable relatively to each other to suit individual cleats of different lengths to be received in the positioning channel.

D. Each has a presser means acting upon the upper surface of the side sheets to maintain the side sheets in the proper plane relatively to the cleats.

E. Each has means to position the side sheets relatively to the corresponding pairs of cleats.

45. Likewise, the machines of the defendant and of the plaintiffs have important features in common, namely:

A. Each has reels for the binding wires, and guides for directing the binding wires onto the box blank.

B. Each has stapling devices for inserting staples to fasten the binding wires and cleats to the side sheets.

C. Each has feed mechanism to advance automatically the blank materials step by step.

E. Each has means to position the side sheets relatively the blank can be relatively positioned by the attendant of the machine with respect to the stapling mechanism so that the staples can be applied in the desired position with respect to an edge of each box section.

F. Each has positioning channels or guides for cleats which are adapted to hold the cleats in end to end relation in two parallel rows.

G. Each has spacing and feeding blocks for the cleats in each of the two rows. These spacing and feeding blocks maintain the ends of the cleats in each row separated at the proper interval while the blank materials are fed along by the feed mechanism.

H. In each machine the binding wire is fed through the machine past the staplers as the result of the feeding movement applied to the box blank.

I. In each machine the feed mechanism is so organized that each blank is fed beyond the stapling mechanism thereby drawing out unattached lengths of the binding wire preparatory to attaching the binding wires to the next following box blank. Thus a gap is left between succeeding box blanks bridged by the binding wires so that when the wires are cut between the blanks free ends of wire are left so that they may be twisted together in completing the closure of the box.

[fol. 174] By Mr. Janney: It is here noted by plaintiff's counsel that at the time of Mr. Browne's testimony just quoted he had observed the machine and method employed by H. R. Gibbons Box Company in making the alternate cleated blank and had also observed the completion of the box made from the alternate cleated blank and had examined the finished boxes. Mr. Browne had not then known of either the "pre-cleating" method of making an eight cleated blank since employed by some of defendant's licensees as described in the deposition of Roscoe Steele,

already here of record; nor was Mr. Browne aware of the employment upon defendant's machines of the so-called "clincher blocks" or cleat detents described in said Steele deposition. Hence plaintiffs' counsel has quoted from Mr. Browne's testimony in the earlier suit against the Gibbons Company primarily with reference to the practices followed and promoted by defendant with reference to the alternate cleated blanks; and the other practices followed and promoted by defendant with reference to the eight cleated blank, are sufficiently described and explained in said Steele deposition.

Plaintiffs' counsel also offer in evidence from the aforesaid record in equity No. 2689, the exhibits referred to in the above quoted testimony of Arthur S. Browne, they to be marked in the present cause, respectively, as follows:

Plaintiffs' Exhibit No. 24. Craig patent No. 1,208,297, December 12, 1916.

Plaintiffs' Exhibit No. 10A. Sheet II of Plaintiffs' Exhibit Drawings of Defendant's Machine used in the suit against the H. R. Gibbons Box Company. Sheet I of these drawings has been offered as Plaintiffs' Exhibit No. 10.

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[fol. 175] Plaintiffs' counsel also offers in evidence from said record in equity No. 2689 certain parts of the deposition of Guilford C. Babcock, as follows:

Guilford C. Babcock, witness for plaintiff, testified:

Direct examination:

I am forty-eight years of age, reside in Morristown, N. J., and am president of 4-One Box Machine Makers. 4-One Box Machine Makers is engaged in the business of building machines to make 4-One boxes and licensing those machines for use. This company has an exclusive license under all of the patent rights of Wirebounds Patents Company, one of the plaintiffs in this case, and my company, 4-One Box Machine Makers, is the other of the two plaintiffs. The four patents to Inwood & Lavenberg are owned by Wirebounds Patents Company and those four patents are included in the exclusive license to which I have just referred. In explaining the system under which we lease

4 One box making machines, we issue two kinds of licenses: one to make boxes that are to be used solely in the business of the licensee, the other to make and sell boxes. In the licenses to make and use boxes that we refer to as "users" licenses, we charge a royalty of 10 per cent. on the fair market value of the boxes used. In the licenses to make and sell boxes, which we refer to as "sellers" licenses, we charge a royalty varying from $7\frac{1}{2}$ per cent. to 5 per cent. of the sale price of the boxes, the variation in royalty depending upon the volume of business done by the licensee. In the "users" licenses, fair market value is determined by adding together (*a*) cost of raw material, (*b*) cost of direct labor, (*c*) 50 per cent. of *a* plus *b*. As to the licenses from our company that are in operation today, we have fifty-five licensees holding sixty-six licenses, operating seventy plants in the United States. Generally speaking, the locations of these seventy plants operated by our licensees cover the entire United States, most of them east of the Mississippi River. I can and do here place upon the record a list of our licensees, with the locations of their respective plants:

[fol.176] List of Licensees and Plants in the United States

| | |
|---|---|
| S. T. Alens & Co., Ltd., New Orleans, La. | 1, New Orleans, La. |
| The American Box Company, Cleveland Ohio | 1, Cleveland, Ohio. |
| American Can Company, New York, N. Y. | 2, Maywood, Ill., Hamilton, Ohio. |
| Anderson-Tully Company, Memphis, Tenn. | 1, Memphis, Tenn. |
| Arlo Box Company, Oak, Marion Co., Fla. | 1, Oak, Florida. |
| Battle Creek Box Company, Battle Creek, Mich. | 1, Battle Creek, Mich. |
| Chicago Mill and Lumber Co., Chicago, Illinois | 3, Chicago, Ill., Cairo, Ill., Helena, Ark. St. Louis, Mo. |
| Columbia Box Company | |
| The Conneaut Can Company, Conneaut, Ohio | 1, Conneaut, Ohio. |

| | |
|---|---|
| Crystal River Crate Company, Crystal River, Florida | 1, Crystal River, Fla. |
| Cummer Lumber Company, Jacksonville, Fla. | 1, Jacksonville, Fla. |
| Defiance Box Company, The, Defiance, Ohio | 1, Defiance, Ohio. |
| Abner S. Deysher, Reading, Pennsylvania | 1, Reading, Pa. |
| Elberta Crate Company, Bainbridge, Ga. | 1, Bainbridge, Ga. |
| Empire State Pickling Co., Phelps, N. Y. | 1, Phelps, N. Y. |
| Forrester-Nace Box Company, Kansas City, Mo. | 1, Kansas City, Mo. |
| Four One Box Company, Inc., Houston, Texas | 1, Houston, Texas. |

[fol. 177]

| | |
|---|---|
| 4 One Box Makers of Hattiesburg, Hattiesburg, Miss. | 1, Hattiesburg, Miss. |
| Fremont Kraut Company, The, Fremont, Ohio | 1, Fremont, Ohio. |
| General Box Company (Assignee of the Brown Company), Winchendon, Mass. | 1, Winchendon, Mass. |
| General Box Company (Assignee of The Cincinnati Wire Bound Box Company), St. Bernard, Ohio | 1, St. Bernard, Ohio. |
| General Box Company (Assignee of Detroit Wire Bound Box Co.), Detroit, Michigan | 1, Detroit, Michigan. |
| General Box Company (Assignee of Eclipse Box & Lumber Co.), Brooklyn, N. Y. | 1, Brooklyn, N. Y. |
| General Box Company (Assignee of Embry Box Co., Inc.) | 1, Louisville, Ky. |
| General Box Company (Assignee of Mesler Box Corporation), Ilmo, Missouri | 1, Ilmo, Missouri. |
| General Box Company (Assignee of T. R. Miller Mill Co., Inc.), Brewton, Ala. | 1, Brewton, Ala. |

| | | |
|---|---|---|
| General Box Company (Assignee of Pioneer Box Company), East St. Louis, Illinois | 3, | Crawfordsville, Ind., E. St. Louis, Ill., Bogalusa, La. |
| General Box Company (Assignee of John B. Ranson & Co.), Nashville, Tenn. | 1, | Nashville, Tenn. |

[fol. 178]

| | | |
|---|---|---|
| General Box Company (Assignee of Republic Box Co., Inc.), New Orleans, La. | 1, | New Orleans, La. |
| General Box Company (Assignee of Sheboygan Cigar Box Lumber & Manufacturing Co.), Sheboygan, Wisconsin | 1, | Sheboygan, Wis. |
| Hazlehurst Box Factory, Hazlehurst, Miss. | 1, | Hazlehurst, Miss. |
| Indianapolis Wire Bound Box Co., Indianapolis, Indiana | 1, | Indianapolis, Ind. |
| The Kansas City Packing Box Co., Kansas City, Kansas | 2, | Kansas City, Kan., Wilson, Ark. |
| Kingan & Company, Inc., Indianapolis, Indiana | 1, | Indianapolis, Ind. |
| La Crosse Box Company, La Crosse, Wisconsin | 1, | La Crosse, Wis. |
| Lange & Crist Box & Lumber Co., Clarksburg, West Virginia | 1, | Clarksburg, W. Va. |
| David M. Lea & Company, Inc. | 1, | Richmond, Va. |
| Libby Box Company, Chicago, Illinois | 4, | Chicago, Ill., Waupun, Wis., Sacramento, Cal., Honolulu, H. I. |
| McFerson & Foster Company, Evansville, Indiana | 1, | Evansville, Ind. |
| Manatee Crate Company, Manatee, Florida | 1, | Manatee, Fla. |
| Menasha Printing & Carton Co., Menasha, Wisconsin | 1, | Menasha, Wis. |

| | |
|---|---|
| National Box Company, Chicago, Illinois | 2, Chicago, Ill., Natchez, Miss. |

[fol. 179]

| | |
|---|---|
| The New England Box Company, Greenfield, Mass. | 2, West Swanzey, N. H., Springfield, Mass. |
| Nocatee Crate Company, Nocatee, Florida | 1, Nocatee, Fla. |
| Pacific Wirebound Box Company, [ San Francisco, Cal | San Francisco, Cal. |
| Quaker Oats Company, The, Chicago, Illinois | 3, Akron, Ohio, Cedar Rapids, Iowa, Fort Dodge, Iowa. |
| Rathborne, Hair & Ridgway Co., Chicago, Illinois | 2, Chicago, Ill., Willetts, La. |
| Republic Box Co. Inc. of Texas, Houston, Texas | 2, Houston, Texas, Dallas, Texas. |
| The Sea Gull Specialty Co., Baltimore, Maryland | 1, Baltimore, Md. |
| Sedro Box & Veneer Company, Sedro-Woolley, Wash. | 1, Sedro-Woolley, Wash. |
| The Southern Box & Lumber Co., Savannah, Georgia | 1, Savannah, Ga. |
| Van Camp Packing Company, Indianapolis, Indiana | 1, Indianapolis, Ind. |
| Van Camp Sea Food Company, San Pedro, California | 1, San Pedro, California. |
| Wallick & Gohn, York, Pa. | 1, York, Pa. |
| Wisconsin Box Company, Wausau, Wisconsin | 1, Wausau, Wis. |

[fol. 180] I place upon the record a tabulation of the number of boxes and the value thereof, year by year, manufactured by our lessees in the United States, up to and including the year 1921.

Number and Value of 4-One Boxes Manufactured by Lessees in U. S. A.

| Date | Boxes | Value |
|---|---|---|
| 1906 | 60,008 | $10,339.27 |
| 1907 | 658,471 | 150,662.05 |
| 1908 | 1,903,881 | 326,974.12 |
| 1909 | 4,032,129 | 712,008.32 |
| 1910 | 5,609,095 | 905,577.58 |
| 1911 | 5,628,983 | 865,818.05 |
| 1912 | 5,698,852 | 857,685.86 |
| 1913 | 7,652,728 | 1,060,060.70 |
| 1914 | 9,652,604 | 1,314,426.20 |
| 1915 | 10,813,375 | 1,578,792.14 |
| 1916 | 18,421,363 | 2,863,977.00 |
| 1917 | 26,854,735 | 5,232,600.00 |
| 1918 | 34,957,410 | 9,121,963.00 |
| 1919 | 26,922,298 | 8,084,435.00 |
| 1920 | 28,505,562 | 11,756,285.00 |
| 1921 | 24,825,356 | 7,179,182.00 |

I also place upon the record a list of the industries in which are used the 4-One boxes made by our company's licensees.

Industries Using 4-One Boxes

1. Adding machines.
2. Advertising signs.
3. Agricultural implements and parts.
4. Airplane parts.
5. Alcohol.
6. Aluminum ware.
7. Animal traps.
8. Asbestos and its products.
9. Asphalt paving.
10. Asphalt roofing.
11. Automobile accessories.
12. Automobile parts.
13. Automobile tires and tubes.
14. Baking powder.
15. Bakers' supplies.

[Fol. 181] 16. Bearings.

17. Beer.
18. Belting.
19. Bicycle specialties.

20. Blankets.
21. Bolts and nuts.
22. Books.
23. Boots and shoes.
24. Bottles.
25. Brass goods.
26. Bread and cakes.
27. Bricks.
28. Brooms.
29. Brushes.
30. Builders' supplies.
31. Butchers' supplies.
32. Butter.
33. Calendars.
34. Candles.
35. Candy.
36. Cans.
37. Canned fish, oysters and clams.
38. Caned fruit.
39. Canned meat.
40. Canned vegetables.
41. Carriage parts.
42. Cartridges.
43. Cash registers and parts.
44. Casket hardware.
45. Castings.
46. Cereals.
47. Chains.
48 Chairs.
49. Cheese.
50. Chewing gum.
51. China and pottery.
52. Chemicals.
53. Cigars and cigarettes.
54. Chocolate and cocoa.
55. Clocks.
56. Clothing.
57. Coffee.
58. Collars.
59. Cork products.
60. Corsets.
61. Cotton cloth.
62. Cotton seed products.

63. Cotton waste.
[fol. 182] 64. Copper products.
65. Cosmetics and perfumeries.
66. Crackers.
67. Cutlery.
68. Cutting wheels and grinders.
69. Dehydrated vegetables and fruits.
70. Dental supplies.
71. Druggist supplies.
72. Drugs.
73. Dry goods.
74. Duplicators.
75. Dyes.
76. Egg cases.
77. Electrical appliances.
78. Electrical fans.
79. Electrical lamps.
80. Electrical instruments.
81. Electrical conduit boxes, etc
82. Enamel ware.
83. Felt roofing.
84. Firebrick.
85. Fire extinguishers and fire hose
86. Fireless cookers.
87. Flowers and ferns.
88. Fresh fruit.
89. Fresh fish.
90. Foundry supplies.
91. Furniture.
92. Gas heaters, stoves and accessories.
93. Glass ware.
94. Gloves.
95. Glue.
96. Groceries.
97. Handkerchiefs.
98. Hardware, miscellaneous.
99. Harness.
100. Hats and caps.
101. Heating apparatus.
102. Hides and tallow.
103. Hosiery.
104. Hospital furniture.
105. House furnishing goods.

106. Ice cream cones.
107. Incinerators.
108. Incubators.
109. Ink.
110. Insecticides.
111. Jewelry.
[fol. 183] 112. Knit goods.
113. Laces.
114. Lanterns.
115. Lard.
116. Lawn mowers.
117. Leather goods.
118. Linoleums.
119. Lithographers' supplies.
120. Matches.
121. Machine tools.
122. Machinery.
123. Meats, fresh and cured.
124. Medical supplies.
125. Metal roofing and shingles.
126. Metal stampings.
127. Mill and factory supplies.
128. Milk, liquid and dry.
129. Milling products.
130. Mineral water.
131. Molasses and syrup.
132. Motion picture apparatus.
133. Motorcycles.
134. Musical instruments.
135. Nails and wire.
136. Notions.
137. Oils and grease.
138. Oleomargarine.
139. Optical goods.
140. Paints and varnish.
141. Paper products.
142. Phonographs and records.
143. Piano parts.
144. Pipes and smoking articles.
145. Plumbers' supplies.
146. Poultry, live and dressed.
147. Proprietary medicines.

148. Radiators.
149. Railroad supplies.
150. Rifles and shotguns.
151. Rubber goods, manufactured.
152. Saddlery.
153. Scales and balances.
154. School supplies.
155. Sewing machines.
156. Sheet music.
157. Silk.
158. Steel products.
159. Silversmith's products.
[fol. 184] 160. Soap and cleaning compounds.
161. Soda-fountain supplies.
162. Soft drinks.
163. Sporting goods.
164. Stationery supplies.
165. Stoves.
166. Surgical and medical instruments.
167. Surveying instruments.
168. Teas and spices.
169. Telegraph instruments and parts.
170. Telephones and parts.
171. Terra cotta.
172. Thread.
173. Tin ware.
174. Tobacco.
175. Toilet articles.
176. Tools.
177. Toys.
178. Trimmings and tailor's supplies.
179. Twine.
180. Typewriters.
181. Umbrellas.
182. Underwear.
183. Upholstery supplies.
184. Vacuum cleaners.
185. Vegetables, fresh.
186. Wallpaper.
187. Washing machines and parts.
188. Woodenware.
189. Woolen goods.
190. Yarn.

Briefly, the equipment which our company leases to its licensees for the manufacture of the 4-One boxes comprises box-blank machines, end stapling machines, closing tools and seals. The office of the box-blank machine is to staple together cleats, sheet material or thin boards and wires which make the foldable box blank. The office of the end stapling machine is to fasten the ends to the inside of the blank after it has been folded. The closing tools are tools that twist together the ends of the wires for completing the continuity of the wire binding after the box is closed. The seals are small pieces of tin fastened to and around the wire twists to make sure that the wire cannot be untwisted without leaving evidence of the fact: that is, the box cannot be opened without evidence of that fact being found.

[fol. 185] In connection with the capacity of the box-blank machine, the product of which is the foldable box blank, in order to give a clear idea of the normal capacity of these blank machines, I have selected for illustration two boxes which are typical of the very large volume of production. First, the Quaker Oats Company's box which carries thirty-six two-pound packages of rolled oats, each box having inside dimension of 24⅜ inches long, by 17⅝ inches wide by 11¾ inches high. The Quaker Oats Company is one of our licensees in the class of those who manufacture boxes for their own use. The actual production of the boxes just described by the Quaker Oats Company averages 218 boxes per hour: that is, at the rate of about 3⅝ boxes per minute or a box in approximately sixteen seconds. Another typical box is that used by Libby, McNeill & Libby to carry 48 1-lb. cans of evaporated milk and having an inside dimension of 18⅛ inches long by 12⅛ inches wide by 8¾ inches high. Libby, McNeill & Libby buy their boxes from one of our licensees and the licensee's production of those boxes averages 266 boxes per hour: that is, approximately 4 1 10 boxes per minute or a box in about thirteen seconds. The foregoing examples fairly represent the general practice. Obviously with varying spaces between staples, the production will vary and the production per unit of time will vary as the boxes are larger or smaller.

Q. 20. What is the fundamental characteristic of the box-blank machines leased by your company to its licensees,

which is responsible for this capacity for high-speed production?

By Mr. Cox: Question is objected to as irrelevant. This suit does not charge infringement by defendant of plaintiffs' machines but of plaintiffs' patent and nothing has ever been adduced showing that there is any connection between them.

A. In my judgment the former or workholder is responsible in that it makes it possible for unskilled labor to easily and rapidly place the box parts in their proper relative positions and these parts are then automatically maintained in their proper relationship as they pass through the machine.

Regarding limits, practically speaking, to the speed at which the workholder carrying the automatically controlled box parts can be advanced through the machine to have the binding wires stapled to, and to connect foldably those box parts, one limit is the ability of the laborer, who is to put [fol. 186] the cleats and sheets on the workholder, to do that job; another limit is the speed at which you can operate your stapling machine mechanism. Within the limitation prescribed by the conditions to which I have just referred, in the machines which we have produced to date, we have not exhausted the potential capacity of the automatic work control mechanism to operate efficiently at high speed. It has never been the cause of a reduction in speed or of a failure to increase the speed. By "it" I mean the workholder or former which automatically maintains the box parts in their proper relationships as they pass through the box machine. In the development of the box blank machines thus far placed with our licensees, we have not reached the maximum of the speed at which the automatic work control means can be operated within its own potential capacities.

My first connection with the business in wirebound boxes like the 4 One box was when I made a connection with the National Wirebound Box Company of South Bend, Indiana, in the fall of 1906. The present plaintiff, 4 One Box Machine Makers, under the name of Wirebounds Corporation purchased all of the property and rights of the National Wirebound Box Company. I have been engaged in that business all of the time since 1906, except for a period of

nearly two years during the war. During that two years I was engaged with the United States Food Administration and later with the Quartermaster Corps of the United States Army from mid-summer, 1917, until spring of 1919. I was in the active service and am now a lieutenant colonel in the Quartermaster Reserve Corps. I was in the military service during the latter part of 1918 and until the spring of 1919, and was located at Brest, Tours and Paris, and I returned to the United States from France about February, 1919.

Preparatory to engaging in business with the National Wirebound Box Company in 1906, I investigated the wirebound box business in general by covering the field sufficiently to reach the conclusion that they had a product that could be sold profitably; that the competition was not such as to cause any serious inconvenience; and that their patent protection could be maintained. In my investigation at that time with reference to attempts to make wirebound boxes, which preceded the development in business of the National Wirebound Box Company, I learned of the Rosback box and of the Green-street box.

The Rosback box was a box with the sides, top and bottom [fol. 187] made of practically one piece of veneer attached to two long strips of wood, wires attached to the veneer and strips of wood during the process of the manufacture. At a later point in the process of its manufacture the long strips of wood were step-mitered at intervals, the veneer scored at the point at which it was expected to be bent; after this the blank was folded up into box form and the ends were put in.

Referring to the Rosback patent No. 603,630, dated August 23, 1898, for "Machines for Step-mitering and Printing Box Blanks," and noting particularly figures 29 and 30 of the drawing, the box blank there shown is exactly like the blank that I have described, ready to be folded into box form. In comparing the typical construction shown in figure 35 of these drawings with the corner construction of the Rosback box I have referred to, figure 35 shows the corner construction that I understood was considered desirable, but which was so seldom reached in actual manufacture as to be practically negligible.

By Mr. Janney: I offer in evidence a copy of the Rosback patent 609,630, referred to by the witness. Plaintiffs' Exhibit No. 7.*

At the time of my investigation in 1906, as far as I was able to learn, the Rosback box was not being produced commercially and has not been since 1906. In my investigation, I learned that the equipment used in making the Rosback box consisted of two machines; one a blank machine that fastened together the veneer, the long strips of wood and the wire; the other machine was a step-mitering machine that had five cutter heads which cut the long strips of wood into cleats of the proper length and was intended also to score the veneer at the point at which it was expected to bend. The product of what I have called the "blank machine" was a rigid blank and that rigid blank was then required to be put through the step-mitering machine. At the time the blank issued from the step-mitering machine the side material for the sides, tops and bottom was supposed to have been scored on the under side at the points at which it was expected to be bent at the corners of the box. My information was that this scoring was very poorly done, and that they were unable to do it sufficiently well to make boxes which they could sell. The scoring did not involve the complete severing of the side material along the lines of the [fol. 188] intended bends in the side material but was not expected to do more than cut a small groove at the point of the expected bends and there was to be no cut-through at any score. After the originally rigid Rosback blank had been rendered flexible by the step-mitering machine, I do not know whether they used an end-stapling machine to put the ends on the box or whether these ends were put in with a hammer and nails. I do know that this further end-fastening operation (whether performed by hand or by machine), was required to be performed in completing the Rosback box. The blank machine for making the rigid Rosback blank was not so connected with the step-mitering machine that the process which eventuated in the flexible scored blank was a continuous and automatic process, but the rigid blank after it left the blank machine had to be

* The Rosback patents are among defendant's exhibits in the present case.

handled in moving it to the step-mitering machine. There are two distinct operations. Referring to Rosback patent 623,258, dated April 18, 1899, "Machine for Step-mitering Box blanks," and nothing particularly Fig. 4, which shows, as the patent explains, the enclosing rigid blank "E" at the right-hand side of the figure and the outgoing flexible blank "E" at the left-hand side of the figure; disregarding all matters of detail, this figure fairly represents the general character of step-mitering machines, with the cutter heads D D', to which I have had reference in my recent answers.

The Greenstreet box which I mentioned with reference to my investigation made in 1906, was a nailed box, with the characteristics of a nailed box, with wires stapled to its outer surface. When I say it was a nailed box I mean that it acted under stress in the same way that a nailed box acted; the sheet material of the sides, top and bottom, was nailed to the ends. In 1906 this Greenstreet box was being produced in two or three plants. On the question whether the Greenstreet boxes produced at that time at those plants were intended for sale or for use by the producer, Kingan & Company, of Indianapolis, Indiana, were the largest users of the Greenstreet box. Mr. Jason H. Greenstreet, who was the inventor of the box, was an employee of Kingan & Company at that time, and still is an employee of Kingan & Company. They made boxes for their own use. As I remember, another plant making these boxes was that of The Defiance Box Company, of Defiance, Ohio, who sold these Greenstreet boxes that were made to Kingan & Company. A third plant, as I remember it, was that of the Consignee's Favorite Package Company, of Chattanooga, Tennessee. I am [fol. 189] not sure about their exact title. They made these Greenstreet boxes for sale. Today Kingan & Company are using principally 4-One boxes made on machines which they lease from us. They are also using some nailed boxes. Kingan & Company is today a licensee of our company and has been a licensee since the summer of 1916. The Defiance Company is one of our licensees, making 4-One boxes and first became our licensee in May, 1919. The Consignee's Favorite Packing Company is out of business, but a part of its assets, including a machine for making Greenstreet boxes, was bought by the O. B. Andrews Company at Chattanooga, Tennessee, which latter company are making nailed

and lock corner boxes only in wood. They are not making any wire reinforced boxes. Neither Kingan & Company nor The Defiance Company is today making any of the Greenstreet boxes and I have assurances from both companies that they have not dealt in the Greenstreet box since becoming our licensee. Aside from the Greenstreet box and excepting the 4-One type of box which was being exploited by the National Wirebound Box Company, at the time of my investigation in 1906 I knew of no other type of wirebound box being produced in substantial quantity. I do not know of any place in which the Greenstreet box is being used today. It is quite possible that it is being used, however, but certainly not to any considerable extent. I have never known of the manufacture or sale of a box of the Rosback type since 1906. The box which was being exploited by the National Wirebound Box Company when I first become associated with it in 1906 is the same as that shown in the Inwood & Lavenberg reissue patent No. 12,725. Since 1906 the only changes that have been made from the construction shown in that reissued patent, in the boxes generally made by our licensees, have been variations in the form of cleat ends; otherwise, the box is as shown. The illustration in the patent shows step-miter cleat ends and the variations in the form of cleat ends to which I refer have been rabbetted cleat ends, tongued and grooved cleat ends, and to some extent plain mitered cleat ends have been used. Aside from these changes in the specific form of cleat end there has been no other change in the boxes made by our licensees since 1906.

Aside from the Greenstreet boxes, the first competition in wirebound boxes which our organization encountered after 1906 was by wirebound boxes made on the machines furnished by the Greenstreet Folding Box Machine Com- [fol. 190] pany of Indianapolis, Indiana. As to the general situation involved with that company, they made machines for making wirebound box-blanks that were for all practical purposes the same as the box-blanks made on our machine. They leased these machines on a royalty basis. In connection with action taken by us with reference to this competition by the Greenstreet Folding Box Machine Company and its licensees, we brought suit against the Chicago Mill and Lumber Company of Chicago, the largest of the licensees, under the box patent reissue 12,725. The outcome

of that litigation was that an injunction was issued against the Chicago Mill and Lumber Company, and shortly thereafter the Chicago Mill and Lumber Company and all of the manufacturing licensees of the Greenstreet Company became our licensees. The particular type of cleat ends employed in the boxes made by the Chicago Mill and Lumber Company and which were enjoined in our patent infringement suit under the reissued patent 12,725, was the tongued and grooved cleats. The injunction against the Chicago Mill and Lumber Company issued in the spring of 1916.

After our litigation with the Chicago Mill and Lumber Company, our next encounter with reference to competition in wirebound boxes was the infringement of the National Box Company of Chicago, Illinois. They were using machines of the same type as the machines furnished by the Greenstreet Folding Box Machine Company to its licensees. These machines were built for them by Charles Stecker. They were made on designs furnished by the National Box Company. With reference to this competition by the National Box Company, we brought suit for infringement under the box patent reissue 12,725, the result of which was the issuance of an injunction. An appeal was taken to the Circuit Court of Appeals and the injunction was sustained.

Q. 79. What did the National Box Company do then?

A. They secured one or more machines for making the alternate cleat box from the Saranac Machine Company. They had difficulty in operating this machine; they had difficulty in satisfying their customers with the quality of boxes they were delivering; and in June, 1917, they came to us and asked for a license which we gave to them.

Q. 80. Please examine the patent to Craig, No. 1,208,297, dated December 12, 1916, already in evidence as Plaintiffs' Exhibit No. 5 [Plaintiffs' Exhibit No. 24 in the present suit]. Compare the box shown in the drawings of that patent with the box you have referred to [fol. 191] as the "alternate cleated box," and which you said was attempted to be made for a time by the National Box Company, before it applied to your company for a license.

A. These drawings show the same box as that which was made by the National Box Company.

By Mr. Janney: I offer in evidence the Rosback patent No. 623,258, dated April 18, 1899, referred to by the witness some time ago; Plaintiffs' Exhibit No. 8.

Q. 81. After the National Box Company had taken its license from your company, what was your next information as to the use of any competitive wirebound box-blank machines?

A. After I returned from France in February, 1919, I learned of the manufacture of alternate cleated boxes by the Plymouth Manufacturing Company, Plymouth, Indiana. I was informed that the Plymouth Company had bought from the Saranac Company one of the box-blank machines for making the alternate cleated box. It had originally been in the plant of the National Box Company and used by them and returned to the Saranac Company by them when they were unable to operate it successfully. The Plymouth Company made boxes on this machine at Plymouth, Indiana. Afterwards, they transferred this machine to a little town in Alabama near Mobile. Later they again moved this machine from Alabama to Plymouth, Indiana, its last move being late in 1921, as I remember. I considered the operation of this machine an unsuccessful experiment. The cost of manufacture was high and the quality of the boxes was inferior.

Q. 82. You have referred to the Saranac Machine Company as the one which furnished machines to the National Box Company, which subsequently returned the Saranac machine and then took your license; and also as the one which supplied the machine attempted to be used by the Plymouth Company. State whether or not that same Saranac Company has any relationship with the present defendant, Gibbons Box Company.

A. The officers of the Saranac Machine Company organized the Saranac Automatic Machine Corporation, which I believe to be a subsidiary of the Saranac Machine Company; and the Saranac Automatic Machine Corporation furnished the machines for making box blanks to the Gibbons Company, the defendant.

Q. 83. Please give approximately the date of your first [fol. 192] information of the delivery by the Saranac Machine Company or the Saranac Automatic Machine Corporation of any machine for making the alternate cleat box.

A. Early in 1917, to the National Box Company.

Q. 84. At that time, for how long had your company and its predecessor been successfully exploiting its wire-bound boxes?

A. A little more than ten years.

Q. 85. And in the year 1917, in which this first delivery of the Saranac machine occurred, how many boxes were made by your company's licensees and what was the value of them?

By Mr. Cox: Objected to as immaterial and irrelevant.

A. 26,854,735 boxes at the value of $5,232,600.

Q. 86. You have said that the first alternate cleat box-blank machine delivered—i. e., the one to the National Box Company—proved unsatisfactory. You have also stated your information that the similar Saranac machine attempted to be used by the Plymouth Manufacturing Company, proved unsatisfactory. Have you known of the use of any Saranac machine for making the alternate cleat blanks, which did prove satisfactory?

A. A machine used by the Gibbons Company, the present defendant.

Q. 87. When did you first learn of the delivery of that machine to the Gibbons Company?

A. I think it was very early in this year, 1922.

Q. 88. Had you ever known of any delivery prior to that time, of any Saranac machine for making alternate cleat boxes, which was similarly satisfactory?

A. I had not.

Q. 89. To summarize your testimony for convenient reference: Since 1906, when you first engaged in the wirebound box business, you encountered first the Greenstreet Folding Box Machine Company and its licensees; against one of the latter you prosecuted a successful patent infringement suit and secured an injunction under the box reissued patent No. 12,725, after which all of the other Greenstreet Company's licensees who had been manufacturing under their licenses, took licenses from your company. Then, you encountered the boxes made by the National Box Company, which you sued successfully for patent infringement, obtaining another injunction under the box reissued patent No. 12,725, which injunction was sustained by the Circuit Court of Appeals for the Seventh Circuit; then the National Box Com-

[fol. 193] pany attempted to make the alternate cleat box upon the Saranac Company's machine, but found the latter unsatisfactory and thereupon took a license from your company. Then the Plymouth Manufacturing Company's machine for making the alternate cleat box, but, as you were informed, found that machine unsatisfactory. Then you found early in 1922 that the Gibbons Box Company, the present defendant, was using a highly improved Saranac machine for making the alternate cleat box. Please state wherein, if at all, the foregoing summary is inaccurate; and state whether or not you have ever known of deliveries by either of these Saranac Companies of any alternate cleat box-blank machine other than those referred to in my summary.

By Mr. Cox: Objected to as leading and also as being in fact testimony by counsel rather than by the witness, and as being not an exact summary of the witness' testimony. This witness has shown that he is quite competent to summarize his own testimony.

By Mr. Janney: The question objected to is an accurate recapitulation of the earlier testimony by this witness, which was adduced without leading question at all.

A. You are correct. I have not known of deliveries by either of the Saranac Companies of any alternate cleat box-blank machines other than those referred to, until after the date of entering this suit.

Q. 90. What is your information regarding any such deliveries since the entry of the present suit?

By Mr. Cox: Objected to as being immaterial and irrelevant.

A. They have delivered a machine to Goudert & Lienesch Company, of Dayton, Ohio.

Q. 91. What reason was there, if any, for the Defiance Box Company, which you have already referred to, to take a license from your company?

A. We found that the Defiance Box Company was marketing a 4-One box having open corners; that they were making this box on a machine that infringed our method, workholder and machine patents. We threatened them with suit and in May, 1919, they took a license. Other reasons may have been that our machine for making 4-One

box blanks was much more efficient than the machine they [fol. 194] had: and that under license from us they were able to make the 4-One box with overlapping corners.

Q. 92. You have testified that the Plymouth Manufacturing Company manufactured alternate cleat wirebound boxes on a Saranac Machine Company's machine which was found unsatisfactory according to your information. What other boxes had the Plymouth Company manufactured, if any?

A. The first wirebound box which I learned that the Plymouth Company was manufacturing was the "sectional box" that they began to manufacture sometime about 1911. These boxes were made of considerably heavier lumber and heavier wire than the boxes made by our licensees. They were sold in different fields from that in which our licensees were selling boxes, and, while I was advised that these sectional boxes infringed our patents, because of the very limited field in which they could be sold, I did not think it of sufficient importance as a competitor to have infringement suits brought.

Some time later, about 1915, the Plymouth Company manufactured and sold a so-called three-piece wirebound box that was the same kind of box as that made by our licensees as far as the two sides and the bottom were concerned; the top was separate.

Q. 93. Please describe briefly the "sectional box" you have referred to.

A. The sectional box when completed had four side sections, each identical in principle with a corresponding side section of the 4-One box. But each side section of the sectional box was made separately; short lengths of wire were stapled to each side section; and it was only in the final assembly of the four separate and disconnected sections that the short lengths of wire on each section were connected to corresponding short lengths of wire on the neighboring section. The cleats employed on the separate sections were grooved on their faces opposite to the faces which contacted with the side material, the grooves extending lengthwise of the cleats from end to end. These grooves were engaged by tongues on battens secured to the box ends. Each short length of binding wire on each section was provided at its ends with a twisted wire loop which served the purposes either of a hook or an eye to be

engaged with a corresponding eye or hook on a wire of a neighboring side section when the box was finally assembled.

As I have already said, these boxes were made of considerably heavier lumber and heavier wire than the boxes [fol. 195] made by our licensees. Altogether, the sectional boxes did not represent competition of any material importance.

Q. 94. What, if anything, did you do with reference to the "three-piece wirebound box" made by the Plymouth Company?

A. We threatened them with suit for infringing and finally reached an agreement in which the Plymouth Company agreed to discontinue the manufacture of the three-piece box and we agreed to release them from any infringement liability because of the manufacture of the three-piece box in the past. They did then discontinue the manufacture of the three-piece box. To the best of my present information and belief, this agreement with the Plymouth Company was reached some time in the late spring or early summer of 1917. I can fix this date definitely, if desired, by reference to our records which do not happen to be accessible at this moment.

Q. 95. In order to condense certain of your testimony already given, in convenient brief form, I make the following brief summary and ask you to compare it carefully with the testimony you have given and to state whether or not the summary represents the facts. As I understand it, you have testified with reference to four companies or groups, which at some time or other represented competition in infringement of the patents controlled by your own company, as follows:

1. The Greenstreet Folding Box Machine Company and its several licensees and lessees, including the Chicago Mill and Lumber Company. You sued the Chicago Mill and Lumber Company and enjoined further infringement of your box reissue patent No. 12,725: Thereafter all of the Greenstreet Company's licensees which were actively operating under their licenses, took licenses from your own company. This situation was closed beginning in May, 1916, when the trial court handed down its opinion finding infringement of your box patent by the Chicago Mill and Lumber Company.

2. The National Box Company, using a machine of its own design, had made infringing boxes. You brought suit on your box patent reissue No. 12,725; a preliminary injunction issued; the Court of Appeals for the Seventh Circuit affirmed the injunction. Then the National Box Company obtained from the Saranac Machine Company a machine intended to make the alternate cleat blank, but were unable to use it satisfactorily. Thereafter, the National Box Company applied for and received a license from your company in June, 1917.

[fol. 196] 3. The Plymouth Manufacturing Company had been making the sectional wirebound box which you considered to be an infringement of your box patent, but practically negligible as a commercial matter. Later, however, the Plymouth Company began to make the three-piece box but when threatened with suit for infringement of your patents, the Plymouth Company agreed to and did in fact discontinue making the three-piece box. Later, the Plymouth Company, according to the best information you obtained, procured one of the same Saranac Machine Company's machines intended for making the alternate cleat box, which had been tried by the National Box Company and found unsatisfactory. You learned that the Plymouth Company bought that machine outright and attempted to use it, both at Plymouth, Indiana, and at a place near Mobile, Alabama, but found the machine unsatisfactory, although boxes made thereon were sold to some extent. The Plymouth Company's agreement to discontinue making the objectionable three-piece box was in approximately the early spring of 1917.

4. The Defiance Box Company had been making a wirebound box substantially like the boxes made by your licensees except that they lacked tight corners. You notified the Defiance Company that they were infringing your machine and method patent; and in May, 1919, the Defiance Company took a license from your company.

5. To recapitulate: Prior to the infringement of the present defendant, complained of in this suit, your company had encountered four other instances of infringement. In two of those instances, infringement suits were successfully prosecuted under your box reissue patent and licenses were taken from your company. In the third instance, without a patent infringement suit, the offender, the Plymouth

Company, agreed to cease the particular infringement complained of. In the fourth instance, following notice to quit infringement, the offender took a license from your company.

6. Prior to the infringement by the present defendant the only deliveries of the alternate cleat blank machines by the Saranac Company of which you were aware, were those to the National Box Company and to the Plymouth Company; and in both cases, the machines were found to be unsatisfactory.

7. The first alternate cleat blank machine of the Saranac Company of an apparently satisfactory character, which you knew to have been delivered, was that delivered to the present defendant and which is complained of in the present suit.

[fol. 197] Have I correctly summarized your testimony already given, in the particulars which I have referred to?

By Mr. Cox: This question is objected to as quite improper. The witness should have been asked to summarize his own testimony—a thing which he is quite competent to do. It is also objected to as not in fact an exact summary as it seems to include conclusions that it is not recalled that the witness reached.

By Mr. Janney: A comparison of the summary contained in the answer with the earlier testimony of the witness, will demonstrate that the summary is a perfectly fair statement in brief of what the witness has already testified. The entirely legitimate purpose of the summary is to set forth in convenient abbreviated form the salient circumstances in the chronological order in which they arose. This treatment cannot but serve the convenience of both the court and counsel.

By Mr. Cox: As an instance, the summary refers to the Plymouth Company as an "offender." It is not recalled that the witness used any such term. As a matter of fact an offender is a person who had been adjudicated for having offended, whereas the summary itself admits that there wasn't even a suit brought.

A. Yes.

Q. 96. Except for the three instances of the National Box Company and the Plymouth Company, which you have al-

ready described, and of the present defendant, have you ever known of any other deliveries for commercial use prior to the bringing of this suit, of alternate cleat box-blank machines by the Saranac Machine Company or the Saranac Automatic Machine Corporation?

A. No, except one machine that I learned was sent to Houston, Texas, and which was never operated.

Q. 97. When you first engaged in the wirebound box business in 1906, were you then acquainted at all with the Saranac Machine Company, and if so, what did you know of the general character of its business?

A. They made fruit package machinery, specializing in wire stapling machines, and also did job machine work.

Q. 98. At the time referred to, so far as you know, was the Saranac Machine Company offering to the market machines for stapling binding wires to wirebound box parts? [fol. 198] A. They were not.

Q. 99. After you first engaged in the wirebound box business in 1906 with the National Wirebound Box Company, did your company have any business dealing with the Saranac Machine Company; if so, what were they?

A. We bought end stapling machines from the Saranac Machine Company and also had them manufacture our stitcher heads from designs furnished by us.

Q. 100. The end stapling machines you have just referred to were used simply for attaching the box ends to the box cleats by means of staples, and had nothing to do with the attaching of binding wire. Is that correct?

A. That is correct.

Q. 101. By "stitcher head," do you refer to the staple forming and driving units employed on your box blank machines?

A. Yes.

Q. 102. Did those "stitcher heads" embody means for guiding or introducing binding wire in proper relationship to the staple driver?

A. I don't know.

Q. 103. In what form were these stitcher heads delivered to your company by the Saranac Machine Company? Were they incorporated in a box blank machine or were they separate?

A. They were separate.

Q. 104. Where were they incorporated with the other elements of the blank machine?

A. In the machine shop of the National Wirebound Box Company, at South Bend, Indiana.

Q. 105. As to the work controlling devices employed in the box blank machine which your company was making in 1906 and shortly thereafter, where were they made?

A. At South Bend, in the shop of the National Wirebound Box Company.

Q. 106. Whose design was employed for those work controlling means?

A. The National Wirebound Box Company's design.

Q. 107. Following 1906, to what extent and for how long a period did your company obtain its stitcher heads from the Saranac Machine Company?

A. Until early in 1911, we secured all of our stitcher heads from the Saranac Company.

Q. 108. Thereafter, what was the source of your stitcher heads?

A. We manufactured them ourselves.

Q. 109. From 1906 to 1911, to what extent, if any, did the [fol. 199] Saranac Company supply your work control elements?

A. They supplied none.

Q. 110. During that same period, to what extent did the Saranac Company engage in the incorporating in the blank machines of the stitcher heads which you obtained from the Saranac Company?

A. They had nothing to do with it.

Q. 111. Prior to 1911, what, if any, machines had the Saranac Company offered in the market, for securing binding wires to wirebound box parts?

A. I never heard of their offering any.

Q. 112. Following 1911 what, if anything, did you learn of the Saranac Machine Company's supplying of machines for securing wire binders to box parts?

By Mr. Cox: This line of questioning is objected to as irrelevant and immaterial.

A. Shortly after our break with the Saranac Company in 1911 they offered machines for making the Greenstreet

box. I did not follow their offer of these machines as closely as I did some other things because I did not then believe nor do I now believe that the Greenstreet box can be made cheaply enough to be a serious competitor with the 4-One box.

Q. 113. Let me interrupt your answer to ask you to describe again, for convenient reference, the Greenstreet box you have just referred to.

A. The Greenstreet box was a box in which the four sides had binding wires stapled to them and they were afterwards wrapped around solid ends and then nailed to these ends.

Q. 114. One more question before you resume your interrupted answer. You referred to your belief that the Greenstreet box cannot be made cheaply enough to be a serious competitor with the 4-One box. Aside from this difference in production cost, are there any differences in quality between the Greenstreet box and the 4-One box which might affect the competitive standing of the former?

A. The purpose of a box as I conceive it is to carry merchandise to destinations in good order. It is possible to make a Greenstreet box that will serve the purpose. That is all the 4-One box will do. The 4-One box will weigh less than the Greenstreet box and might be considered to have advantages because of its lighter weight which would mean less cost in transportation, but with the question of cost of production left out of your calculation when assum- [fol. 200] ing that 100 per cent strength is necessary to carry specific merchandise to its destination, in my judgment a Greenstreet box can be made with this 100 per cent necessary strength and the 4-One box can be made with this 100 per cent necessary strength. Any excess strength that the 4-One box may have over the Greenstreet box is of no value, assuming always that the Greenstreet box is made strong enough.

Q. 115. How do the characteristics of the Greenstreet box in use compare with the characteristics of an ordinary nailed box, assuming that the character and weight of wood is the same in the two instances?

A. The Greenstreet box resists strain in exactly the same way that the nailed box does. It would be stronger than the nailed box because it has binding wire. If wire bind-

ings were put on the nailed box you get the same resistance to strains that you got from the Greenstreet box.

Q. 116. How do the characteristics of the Greenstreet box in use compare with the characteristics of a 4-One box, assuming that the character and weight of wood is the same in the two instances?

A. The 4-One box is very much stronger.

Q. 117. Assume a Greenstreet box and a 4-One box having the same inside dimension and required to carry equal loads. What would be required for the respective boxes as to the character and weight of the box materials employed? I ask only a statement in general terms on this subject.

A. The thickness of the boards in the sides, top and bottom of the Greenstreet box would have to be very much greater than the thickness of the boards in the sides, top and bottom of the 4-One box. By "much greater" I mean at least 50% greater in order to produce the same carrying efficiency.

Q. 118. Please now resume your interrupted answer to Q. 112 in which I asked you what, if anything, you learned, following 1911, about the Saranac Machine Company's supplying of machines for securing wire binders to box parts?

A. In his affidavit in our suit against the National Box Company, dated the 14th day of July, 1916, Mr. Edward Craig, president of the Saranac Machine Company and also, I believe, president of the Saranac Automatic Machine Corporation (one of these companies furnished the machine which was found unsatisfactory by the National Box Company, and the other company furnished the ma- [fol. 201] chine of the present defendant complained of in this suit), said:

"During the past four or five years my company had sold machines for making wirebound boxes to a number of concerns in different parts of the country for example, Penn Yan, N. Y., Rome, Ga., St. Louis, Mo., and near Philadelphia, Pa., and I know that such concerns have been actively engaged in the business of making wirebound boxes independently of the Wirebounds Corporation or Wirebounds Patents Company, and also independently of the Greenstreet Folding Box Machine Company, and in competition with the licensees of the complainants herein."

Mr. Windnagle, of Gaile & Windnagle, of Penn Yan, N. Y., told me that he had secured one or more of these machines from the Saranac Company for making wire-bound boxes and that he was making the Greenstreet box on these machines. I learned that the concern in St. Louis that was operating the machine from the Saranac Company was making the Greenstreet box. In addition to the points mentioned by Mr. Craig, I learned that he furnished machines for making the Greenstreet box to the Forrester-Nace Box Company of Kansas City, Mo., and also to the Queen City Box Company, Cincinnati, Ohio. There may have been others.

Q. 119. What do you know as to the continuance by the several concerns you have referred to, of their use of the Saranac Company's machine for making the Greenstreet box?

A. As far as I know, none of these concerns are making the Greenstreet box at this time.

Q. 120. Do you know of any particulars attending the discontinuance of that use by any of the concerns to which you have referred?

A. The Forrester-Nace Box Company discontinued the making of the Greenstreet box at the time they became our licensee in 1916.

Q. 121. Can you refer to any U. S. patent which fairly indicates the character of the Greenstreet box you've been talking about?

A. Yes. The Jason H. Greenstreet patent No. 547,486, dated October 8, 1895, shows the general character of the Greenstreet box, having the sides, tops and bottoms nailed to the solid ends and having the wires secured to the sides, top and bottom. I don't know whether or not the details of construction shown in this patent, e. g., the thick slats A' [fol. 202] and the connecting devices D, were ever used in practice.

Q. 122. Beside the Saranac Company's machine for making the Greenstreet box, what other type of machine for making wirebound box parts did the Saranac Company put out following 1911?

A. The alternate cleat machine that they furnished to the National Box Company early in 1917?

Q. 123. Prior to this alternate cleat blank machine furnished to the National Box Company in 1917, did you ever know of the Saranac Company delivering any wirebound box-blank machine which was intended or constructed to deal with cleats as well as side materials?

A. They delivered a machine probably in 1905 to the National Wire Bound Box Company that was built under order and from the specifications furnished by the National Wire Bound Box Company. This machine was operated in the plant of the South Bend Healy Box Company of South Bend, Indiana, a licensee of the National Wire Bound Box Company.

Q. 124. Except for this machine delivered in 1905 to the National Wirebound Box Company's licensee, did you ever know of the Saranac Company delivering, prior to 1917, any wirebound box-blank machine which was intended or constructed to deal with cleats as well as side materials?

A. No.

Q. 125. Did any machines for making the Greenstreet box—I refer to the machines for attaching binding wires—deal with cleats as well as side material, so far as you know?

A. No.

Q. 126. Did those machines for making the Greenstreet box apply wires to side material so as to provide for the subsequent attachment of those wires to cleats?

A. They did not.

Q. 127. What sort of side material was dealt with in those machines for making the Greenstreet box?

A. Thin boards, both sawed and rotary cut.

Q. 128. Were the boards in the form of slats or sheets or both?

A. Originally slats only and afterwards both slats and sheets.

Q. 129. I understood you to say that the first wirebound box-blank machines ever delivered by the Saranac Company, so far as you know, which machines dealt with cleats as well as side material, was the alternate cleat machine furnished to the National Box Company in 1917 and found [fol. 203] to be unsatisfactory—disregarding the 1905 machine made for the National Wire Bound Box Company?

A. Yes.

Q. 130. When was the first time that you ever knew of the Saranac Company's delivering what was said to be a satisfactory wirebound box-blank machine which would deal with cleats as well as side material?

By Mr. Cox: It would seem that this ancient history regarding the Saranac Company is rather far afield from the present investigation even though the Saranac Company made defendant's machine. This line of questioning is therefore objected to, and by stipulation it may be considered that the same objection will run against any and all further inquiries on this line.

By Mr. Janney: This objection seems to plaintiffs' counsel to require the following statement: Defendant's counsel is asked to point out any errors in fact which may be made.

The history of the Saranac Company's activities is distinctly pertinent, in large part because the Saranac Company is the party mainly in interest in the defense of the present suit. Arthur F. Durand of Chicago has been for many years patent counsel to the Saranac Machine Company. It is believed that Mr. Durand retained the counsel at present representing defendant, and that Mr. Durand has been in active consultation with defendant's counsel of record in connection with the present defense, and that Mr. Durand is at present in Washington (where this testimony is being taken) and is co-operating actively with defendant's counsel of record with reference to this testimony. It is believed that Mr. Durand is at least in a position to control the defense; and that the expenses of the defense are being defrayed directly or indirectly by the Saranac Company.

By Mr. Cox: It is true that Mr. Durand is cooperating with defendant's counsel which is natural enough as he probably knows more about the wirebound box industries than any other attorney, of course, the present company excepted, but it is nevertheless a fact that defendant's counsel has never had any dealings with any of the Saranac people and the speaker has never been in Benton Harbor, Michigan, so far as he recalls. If the Saranac Company [fol. 204] should be sued, apparently the courts are open to

plaintiffs, but it is hardly thought that the present record will probably go into the acts of the Saranac Company long before this suit was brought or before the defendant obtained the machine.

A. Early in 1922 or very late in 1921, a machine which the Saranac Company delivered to the Gibbons Company, this defendant.

Q. 131. Again, I wish to summarize your testimony already given, this time with regard to the Saranac Machine Company's activities in connection with wirebound box-blank machines. Please note the following summary, scrutinize it *with* care, and point out my errors, if any:

1. In 1905 or thereabouts, the Saranac Company made a wirebound box-blank machine for attaching binding wires to both side materials and cleats, that machine having been made for and upon specifications furnished by the National Wire Bound Box Company.

2. Thereafter, and until 1911, the Saranac Machine Company did not offer any machine for securing wire binding to box parts; but during that period it did supply stapling units, made from the designs of the National Wire Bound Box Company, to be incorporated in the wirebound box-blank machines which were being built by the National Wire Bound Box Company.

3. After the National Wire Bound Box Company discontinued purchasing its stapling units from the Saranac Machine Company in 1911—the Saranac Machine Company began to supply machines for making the Greenstreet box, but they merely applied binding wire to side material and did not deal with cleats at all.

4. Beginning in 1917, the Saranac Company delivered the alternate cleat blank machine, which was found unsatisfactory to the National Box Company and later by the Plymouth Manufacturing Company. That type being the first one offered by the Saranac Company, so far as you know, which was intended to deal with cleats as well as side material.

5. Early in 1922, the Saranac Company made its first delivery, so far as you know, of the substantially improved

and apparently satisfactory alternate cleat blank machine, which is used by the present defendant and complained of in this suit.

Please state whether the foregoing summary is accurate.

A. It is.

Q. 132. Returning now to your early experience in the [fol. 205] wirebound box machine business—what blank machines were in use by your company's licensees in 1906?

A. There were two types of machines: first, the type of the portable workholder in use at the plant of the South Bend Healy Box Company, at South Bend; and, second, the type of the traveling stitcher head in use at the plant of the Indianapolis Wire Bound Box Company.

Q. 133. Describe briefly the portable workholder type of machine you have just referred to.

A. There was a table with stitchers at about the same level as the table and the portable workholder or former into which the box parts were assembled and held in their proper relationship. This portable workholder was then put on the table and held in guides that directed it and advanced by power under the stitchers. The binding wires were fastened at the same operation as that by which the staples were driven and after one blank was completed another workholder was introduced into the machine and the operation repeated.

Q. 134. What were the "box parts" which were assembled in the workholder?

A. Eight cleats and thin boards for the four sides of the box.

Q. 135. How did that machine which was in use in 1906 by your licensee at the plant of the South Bend Healy Box Company, compare with the machine which is shown in the Inwood & Lavenberg blank machine patent here in suit? (A copy of the Inwood & Lavenberg patent No. 1,128,145 is handed to the witness.) Please confine your reply to the general features of this machine; I shall ask you more particularly about the work-controlling features in a later question.

A. These illustrations (referring to the patent) show the machine practically as I saw it in South Bend. Any differences would be of a minor character.

Q. 136. Is there any difference which you can point out?

A. There were guides that carried the workholder through the machine; there were fins on the spacer blocks that separated the thin boards of the side sections; and there was some arrangement, the details of which I do not recall, that provided for enough wire between the blanks to enable the twist to be made at the end.

Q. 137. Please explain briefly the character and location of the guides you refer to.

A. I can't give you the details. The front end of the workholder fitted into something that held it in place.

Q. 138. Please refer to the Inwood & Lavenberg patent [fol. 206] in suit, No. 1,128,144, on the work-controlling means. How does the carriage and former shown compare with that one in use in 1906, as you state?

A. This is what I saw with the exception that this does not show, as far as I am able to see, any arrangement for providing fins on the spacer blocks 6 to separate the thin boards of the sections. I do not remember whether or not the springs 15 were on the workholders that I saw.

As to the character of use to which these machines were put in 1906, our licensee was engaged in the business of making and selling 4-One boxes and all the boxes that they made were made on those machines. Those same machines continued in that same use for several years following 1906. Briefly describing the "traveling stitcher head" machine, which was the second type in use in 1906, the former or workholder had been made into an endless chain and the box parts, that is, the cleats and the thin boards, were held in this former and the staple making and driving mechanism traveled over the box parts so held, driving the staples and fastening the binding wires to the blank. The traveling stitcher head machine was continued in use for about three years after 1906. Then a development was made whereby the traveling heads were tied down and the workholder or former chain moved under the stitcher heads with step-by-step movement. With reference to machine development in our company's business after the change from the traveling stitcher head machine, we have done everything we could to make as efficient a machine as could be produced; efficient from the standpoint of quality; efficient from the standpoint of the amount of labor required to operate it.

We succeeded to the extent that with the same amount of labor, certainly with no greater labor, and probably with less labor, we can produce at least four times as many boxes in a given period on our present box-blank machine as could be produced in 1906, and the quality is very much better. Enumerating some of our machine developments and indicating how they have contributed to the increased capacity of our machines, we provided spools for the binding wire instead of taking the binding wire from the coils as it is delivered by the wire manufacturer, thereby reducing the loss of time from failure to properly feed the binding wire as the blank passes under the stitchers. We have improved our stitchers so that they are much more efficient than they were and require less skill in keeping them properly adjusted and in proper working order. We [fol. 207] have strengthened the various parts of the machine to provide for operation at higher speeds than that at which the machines operated in 1906. We have provided automatic staple positioning means; have provided automatic wire cut-off. These various developments have contributed to the increased capacity of our machines in that they made it possible for the former chains to travel more rapidly and more persistently under the stitchers. By "former chains" I mean the workholding and controlling elements.

Aside from the change from the portable workholder illustrated in the Inwood & Lavenberg patent in suit, No. 1,128,144, to the endless chain type of workholder, there has been no change in principle of construction and operation made since 1906 in the workholding and controlling elements of our machines to adapt them to the present quadruple capacity which I have referred to. The little changes in details are the use of parts that are a little heavier; the use of special blocks of a little different type as different types of cleat ends have been used; and improvements of the joint at the bottom of the former chains so that it will provide for a clinch, or at least a partial clinch of the points of the staples if the points happen to come through the cleats. At some time during our period of development, we increased the length of the legs of the staples. In changing from the portable type of work controlling means to the endless chain type in 1906, no changes in principle and organization were made from

what is shown in the Inwood & Lavenberg workholder patent No. 1,128,144. We had in effect a series of workholders connected together into an endless chain, with joints in the chain every 12 inches so as to enable it to go around the sprocket wheels. Beginning with the earliest type of portable workholder machines in use in 1906 and down to the present time, there have been no changes made in the work controlling devices which would change the "co-operative foldable relationship" between one box section and the next described in the Inwood & Lavenberg patent. Regarding the lengthwise dimensions of cleats in relation to the distance between spacer blocks between which the cleats are to be placed in the work controlling means, there is a standard commercial practice among our licensees of allowing 1 32" play to make it possible to get the cleats in the right position easily and also to make it possible for the finished blank to leave the former chains easily. By 1/32" play, I mean the distance between the blocks is 1 32" greater than the length of the cleat. Considering whether this 1 32" difference which is aimed at [fol. 208] is a maximum or minimum play, it is considered as you can get in commercial practice. The good manufacturers make an effort to see that the operators set up the machine so that there will be just 1 32" play. The operator has a tendency to increase the amount of this play by setting the spacer blocks a greater distance apart. Referring to the significance and importance of the fins used on the spacer blocks in the 1906 portable workholder in the machines actually operated by our licensee (which fins I cannot find in the workholder patent in suit), these fins were used to make it easier for the feeder of the thin boards to get them in proper position. They were not essential although they were desirable. I do not recall seeing the machines at the South Bend Healy Box Company plant with the portable formers operate without fins, but I have seen our present commercial machines operate in a very considerable number of instances where the fins had been broken from the spacer blocks. Under the circumstances described, when the fins have been broken from the spacer blocks in our present high speed commercial machines, the machine operated at the same speed without the fins as with them. The quality of the product would probably

be a little inferior when the fins were left off. It would, however, be a salable product.

Q. 156. State what you know about the money which has been expended by your company and its predecessors on experimental and development work for the improvement of your machines.

A. I submit a statement giving recapitulation of expense in expansion of business for the six years, 1916 to 1921, inclusive:

| | |
|---|---|
| Machine Development ..... | $340,822.66 |
| New Business Development ..... | 123,865.85 |
| Manufacturing Methods Service .. | 24,551.26 |
| Research Laboratory .. ..... | 16,416.65 |
| | $505,656.42 |

Prior to 1916, our books were not kept in such a way as to show the division between the general administrative expense and the development expense. However, the income was expended in administration and development. No dividends were paid until after 1915.

Q 157. Please refer to the Inwood & Lavenberg patent No. 1,128,144, and particularly Figs. 1 and 6, showing the perspective view of the workholder. I note that the arms 12 referred to in the specification as being provided "in order to *hold the sheets against displacement upon the* [fol. 209] *cleats*," etc.—are pivoted at 12 (Fig. 1) in a plane apparently located at some distance from the extreme rear end of the lower bar 4 of the holder. What, if any, is the effect of that particular arrangement?

A. If this was sufficiently far from the end of the workholder, it would provide the proper distance between box blanks necessary for the tie wire, i. e., the lengths of wire to be twisted together.

By Mr. Janney: I offer in evidence the sheets of drawings described and identified in the deposition of Arthur S. Browne, as drawings of the defendant's machine, examined by Mr. Browne, to be marked Plaintiffs' Exhibit No. 9.*

* Plaintiffs' Exhibits Nos. 10 and 10-A in the present suit.

[fol. 210] Evidence on Behalf of Defendant

It was explained that the testimony on behalf of defendant was all presented in deposition form, whereupon counsel for defendant made formal offer of Defendant's Record, Volumes I and II, containing depositions on behalf of defendant, and also made formal offer of the exhibits referred to in the depositions. These were received in evidence without objection.

Evdence on behalf of defendant, taken beginning Thursday, July 16, 1925, at 10 o'clock a. m., at the office of defendant's counsel, Cheever & Cox, 1133 Monadnock Building, Chicago, Illinois, pursuant to notice.

Present: On behalf of plaintiffs, Laurence A. Janney, Edward F. Dunne, Jr.; on behalf of defendant, Howard M. Cox.

It is agred between counsel that Laura Grossfield, a notary public in and for Cook County, Illinois, may act as Special Examiner under the statute, by whom defendant's witnesses shall be sworn and before whom their depositions shall be taken.

By agreement of counsel, and pursuant to the stipulation heretofore made of record and dated May 19th, 1925, defendant's counsel, under paragraph 7 and the subparagraphs thereof of said stipulation, offers in evidence the following:

**1. From the record in the United States District Court for the Northern District of Illinois, Eastern Division, in Equity No. 2689, Wirebounds Patents Company and 4-One Box Machine Makers, plaintiffs, vs. H. R. Gibbons Box Company, defendant:**

**(a) Certain parts of the deposition of John H. McElroy, an expert witness, offered by the defendant as follows:**

**John Howard McElroy, being first duly sworn, deposes and says as follows:**

**I am the John Howard McElroy who, on May 5, 1923, made an expert affidavit on behalf of defendant in opposition to the motion for a preliminary injunction in this suit. I have read and studied the four patents in suit to Inwood & Lavenberg, Nos. Reissue 12,725, 1,128,144, 1,128,145 and**

1,128,252, together with the file histories of said patents, and I have read the depositions of Arthur S. Browne and Guilford C. Babcock, offered on behalf of plaintiffs in this [fol. 211] I have also examined the Transcript of Record in Patent Appeal Docket No. 614 in October Term, 1909, of the Court of Appeals of the District of Columbia, in the case of William P. Healy, Assignee, etc., vs. Richard G. Inwood and Perry C. Lavenberg, being the appeal in interference No. 27,004, in which the machine patents in suit Nos. 1,128,144 and 1,128,145 were involved.

Inwood & Lavenberg Patent No. 12,725, Reissued November 26, 1907, Original No. 799,854, September 19, 1905.

Regarding this patent, I have already presented my views in an affidavit given by me in connection with the preliminary injunction proceedings in this cause, and I here make that affidavit part of my direct examination at this time. For a clear understanding of the drawings and specification of this patent, and the teachings thereof, and in order that the difference between this patent and the defendant's manufactured product may be fully understood, it is important to keep in mind the disclaimer of this patent, which is as follows (lines 69-85):

"The persent method of manufacturing wire-bound boxes is to form the blank of a single sheet stitched or stapled to single piece cleats for each end of the box, the cleats being step-mitered and the sheets scored or grooved on the under side, so as to form four sections, after the cleats, sheets and reinforcing wires have been stapled together. This box blank when folded forms a rounding edge, the veneer sheets if not thoroughly seasoned so as to have pliability, begin to check as the lumber seasons. As the grain of the wood may be diagonal to the edge of the box, the check will follow the grain, thus rendering the box unsightly, besides a possible opening of a side so as to preclude its use for goods requiring a tight jointed box."

This is a recital of the prior art, and of the prior method which the patentees Inwood and Lavenberg claim was in vogue at the time they made their alleged invention. The writer of that statement doubtless had in mind the method disclosed in the Rosback patent No. 623,258, April 18, 1899,

for this patent shows (see Figs. 34 to 38) the method recited in the above-quoted disclaimer of the so-called box patent in suit.

[fol. 212] Claim 1 of the reissue patent in suit reads as follows:

"A wire-bound foldable box-blank, comprising a plurality of straight-edged sheets, wires secured to and connecting said sheets, and cleats secured to said sheets to terminate short of edges of the latter a distance equal or approximately equal to the thickness of a sheet, whereby when folded at a right-angle the end of one sheet overlaps the end of an adjacent sheet."

With the exception of the functional "whereby" clause at the end of this claim, every word of the claim describes the structure and method set forth in the disclaimer, and the structure and method shown in said Rosback patent No. 623,258.

Analyzing the claim, the first element is "a plurality of straight-edged sheets," and this is found in the Rosback patent, as in this prior patent the veneer portion of the blank E is formed with transverse grooves on its under side, which divide the veneer into sheets (see Figs. 37 and 38), the straight edges thereof being formed by said grooves. True, these sheets are hinged together by thin flexible portions of the veneer, but they are none the less "straight-edged sheets," and they answer the first element of the claim.

The second element of the claim is "wires secured to and connecting said sheets," and these are found in said Rosback patent No. 623,258.

The third element (which is really the last element of the combination set forth) is "cleats secured to said sheets to terminate short of edges of the latter a distance equal, or approximately equal, to the thickness of a sheet," and this found in the Roosback patent above mentioned, very clearly (see Figs. 35 and 38), so that thus far the claim is accurately descriptive of the structure disclaimed in the reissued patent in suit and fully disclosed in said Rosback patent No. 623,258.

The result specified in the "whereby" clause at the end of the claim is that "when folded at a right-angle the end

of one sheet overlaps the end of an adjacent sheet," and in the sense in which this language is presumably used in the patent in suit this result is not present in the box of said Rosback patent, as in the latter the sheets are presented corner to corner, where they come together, notwithstanding that each cleat is secured in position with one end terminating short of the adjacent edge of the sheet by a margin even greater than the thickness of the sheet. There- [fol. 213] fore, the descriptive portion of the claim in question does not contain sufficient limitations to justify the "whereby" clause at the end of the claim, for the result specified at the end of the claim does not necessarily follow from the specific recital of structure presented in the enumeration of the three positive elements of the claim. To make "one sheet overlap the end of an adjacent sheet" requires something more than merely that the "cleats (be) secured to said sheets to terminate short of edges of the latter a distance equal, or approximately equal, to the thickness of a sheet," for this is true of the structure of the Rosback patent No. 623,258, and yet in this Rosback patent one sheet does not overlap the other in the sense in which it does in the patent in suit. The descriptive portion of the claim in question must, therefore, be amplified by reading into the claim sufficient conditions to justify the "whereby" clause at the end of the claim.

Reference to the specification and drawings of the reissue patent in suit shows at a glance what the thing really is that produces the result covered by the "whereby" clause at the end of the claim. This is nothing more nor less than the termination of both ends of each cleat short of edges of the sheet a distance equal to the thickness of the sheet, and if this feature be included in the claim the "whereby" clause at the end of the claim is then supported by something tangible and by limitations which bring about the result specified at the end of the claim. Without the inclusion of this feature, however, the claim is insufficiently limited to distinguish from the disclaimer itself, or from the disclosure of the Rosback patent No. 623,258. It is true, of course, that one sheet might overlap the other, even though one end of each cleat terminates exactly even or flush with the edge of the sheet, but in such case the over-

hanging portion of the sheet at the other end of the cleat must be equal to much more than the chickness of the sheet and not "equal, or approximately equal," to said thickness, as the claim requires, if the structure involving step-mitered cleats shown in the patent in suit is employed, and no other structure is shown or suggested.

Of course, with tongue and groove cleats each cleat may have one end even with the edge of the sheet and the other end terminating short of the edges of the sheet only a distance equal to the thickness of the sheet, but there is no disclosure of tongue and groove cleats in the reissue patent in suit, and it only becomes more apparent that the result specified by the "whereby" clause at the end of the claim does not necessarily follow from the previous recital in [fol. 214] the claim, but on the contrary, there must be something added as a condition precedent to secure the result stated, and the only thing available in the disclosure of the patent in suit is the construction whereby "the cleats 1 are spaced a distance apart measured from the adjoining edges of the sheets, equal to the thickness of said sheets," as specified in the patent itself (lines 46-49), for with both ends of the cleats set back this particular distance from the edges of the sheets the desired result that "when folded at a right-angle the end of one sheet overlaps the end of an adjacent sheet" necessarily follows and without any waste material.

The claim does not accurately describe the defendant's box blank, for in the construction of the defendant's box blank there are absolutely no cleats on the intermediate sheets, and on the others there are no cleats which terminate short of edges of the sheets, and certainly there are no cleats both ends of which terminate short of edges of the sheets. The claim in question does not describe, nor attempt to describe, a finished box, but on the contrary, sets forth in language familiar to those skilled in the art a "box blank," and the claim correctly describes the box blank shown in Figs. 1, 3 and 4 of the patent in suit, but does not describe the defendant's box blank.

In the use of defendant's box blanks, after the boxes are completed, there are cleats which do not extend quite to the edges of the sheets, in a certain sense, but these cleats cannot be said to have ever been a part of the box blank from which the finished box was made. These cleats, be-

fore the defendant's box is set up, are secured to the heads or end walls, but these cleats are not fastened to the side walls until after the box blank has ceased to be a blank and has lost its identity as such in the finished or completed box.

The claim in question, of the reissue patent in suit, does not specify that the binding wires are stapled to the cleats, but on the contrary, says simply that these wires are "secured to" and connect said sheets, and the language of the claim correctly describes any wirebound box blank having binding wires and having also, at points outside of said wires, nails to secure the cleats to the sheets. In other words, the claim describes accurately and does not distinguish from the "wirebound foldable box blank" made by simply laying down sheets of veneer on cleats, inserting nails through the sheets into the cleats, and then stapling two or more wires longitudinally of the blank to flexibly connect the sheets together, but with said wires disposed [fol. 215] a distance inside of the rows of nails employed to fasten the sheets to the cleats. The box made by using such a blank would have lap corners, like the Greenstreet patent No. 547,486, but would have cleated or paneled ends, like the Howenstine patent No. 453,479, or like the Hamilton patent No. 373,828, or like the Ramsey patent No. 486,297, and such a box would be exactly described by the language of claim 1 of the patent in suit, for this claim does not preclude the nailing of the cleats to the sheets, and says nothing about the fastening of the wires by staples to the cleats.

The patent in suit distinguishes from the Rosback patent No. 623,258 only very slightly. If in Rosback the cut made by the saw were to extend clear through the veneer, and if the cleats were set back from the edge at both ends, the two patents would then show the same blank, but not the same method. Plainly, therefore, the method of making the blank of the reissue patent in suit must be relied on in determining the meaning of the claim in question, for without considering the method of making the blank the claim does not differ from the Rosback blank except by the result stated in the "whereby" clause at the end, and this result (the lap corner) is old in Greenstreet No. 547,486, and in Ramsey No. 486,297, and in Foster No. 309,297, and in the Archer British

patent No. 4793 of 1899, and in others. The claim, therefore, is an accurate description of the blank shown in Fig. 3 of the patent in suit, when enough conditions are implied in the reciting part of the claim to support the result specified in the "whereby" clause, but this claim is not an accurate description of the defendant's box blank, for defendant's blank has, as a blank, no cleats of any kind, at any time, which terminate short of edges of the sheets.

The claim must be taken as a description, or an attempted description, of the box blank shown in Figs. 1, 3 and 4 of the reissued patent in suit, and not as a description of the finished box, for as a description of a completed box it does not distinguish from the old cleatless blank method of making wirebound boxes. With the old cleatless blank, as disclosed by Greenstreet and others, the sheets lap at the corners of the box, and the cleats, or some of them, when the foldable blank has ceased to be a blank and has become a part of the box, terminate short of edges of the sheets. In the Greenstreet patent No. 547,486 the edge portions of the solid heads are the equivalent of cleats, for with a cleatless blank it makes no difference whether the head is all in one piece or is made of several pieces. But if paneled heads are desired, in the old prior art methods, such heads are found [fol. 216] in Ramsey No. 486,297, Hamilton No. 373,828, and Howenstine No. 453,479, and with these obviously substituted for the heads of Greenstreet No. 547,486, the same conditions are set up as are stated in the claim, if the latter is a description of a box blank in a finished box, and it is here that the disclaimer in the patent in suit makes it plain that the claim is a description of the box blank, or of the box in the making, for otherwise the disclaimer has no significance or meaning as a part of the teaching of the patent. In Greenstreet No. 547,486, the sheets are nailed to the solid heads, or to the cleats if paneled ends are employed, but the claim in question (claim 1 of reissue No. 12,725, now expired) does not, as a technical description, preclude such nailing of the sheets to the cleats.

The language of this claim, even when read with the implied condition necessary to produce the lap corner, is so general that it describes a box blank with cleats either nailed or stapled to the sheets. The finished box, therefore, of the patent in suit, is disclosed in the prior art, but the exact box

FIG. 1 BOX BLANK OF THE REISSUE PATENT

FIG. 2. DEFENDANT'S BLANK IN THIS CASE

FIG. 3. DEFENDANT'S BLANK IN PRIOR SUITS

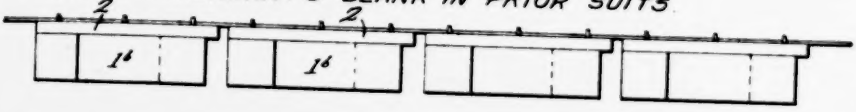



FIG. 4. PLAINTIFF'S COMMERCIAL BLANK.

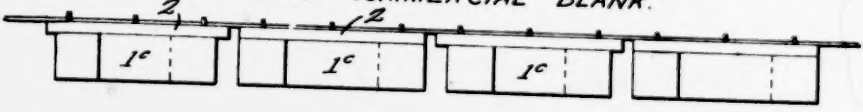



FIG. 5. OLD CLEATLESS BLANK

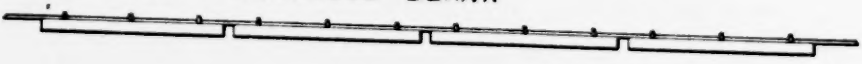


FIG. 6. OLD SCORED BLANK

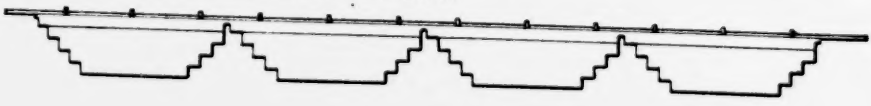


FIG. 7.
END WALL
FOR CLEATLESS
BLANK.

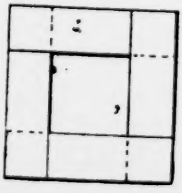


FIG. 8.
END WALL FOR
INTERMITTENT
CLEAT BLANK.

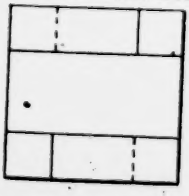
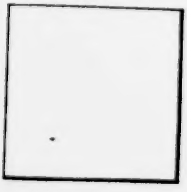


FIG. 9.
END WALL FOR
FULL CLEATED
BLANK



**Defendant's Exhibit No. 10, Drawing Opposite Page 23, Gibbons Record.**

blank shown in the patent in suit is not found in the prior patents, although substantially so when such patents as Archer (British) No. 4793 of 1899, and others, which show short cleats and lap corners, are considered. It is obvious, for example, that the Rosback No. 623,258 blank could be formed and cut like the Archer blank, and it is obvious that the latter may have wires like the Rosback patent.

The method or process of the reissued patent is disclosed in such patents as Howenstine No. 453,479, Healy No. 768,123, Hamilton No. 373,828, and others, for these patents show blanks made by fastening previously formed cleats and separate sheets together, by wires or straps, and this is the only distinction over the box of the old Rosback patent No. 623,258. In the reissued patent in suit, the lap corner, and the cleat end set back from the edge of the sheet, are not process or method steps, but are merely structural features which result from the method of making and folding the blank, and the general method of the patent is the same whether the lap corner is used or not. Clearly, therefore, the defendant's blank is a cross between the cleatless blank of the prior art and the full-cleated blank of the Rosback patent No. 623,258, or others.

At this point I insert the drawing which I inserted in my said affidavit to illustrate the different blanks used in the making of wirebound boxes.

(Here follows Defendant's Exhibit No. 10, side folio 216½)

If it be said that the Greenstreet patent No. 547,486 and [fol. 217] others do not show the twisting of the wires together at their ends, the reply is that this feature was well known and common practice, as stated in the Rosback patent No. 609,630 (see lines 45 to 51, p. 1), and in others, to fasten the cover down by twisting the ends of the wires together.

Also, there is nothing in the claim about the tensioning of the wires, for such cutting in of the wires at the corners (see Fig. 4 of patent No. 12,725) may or may not follow as the result of what is actually set forth in the claim. In the drawings and in the specification of this patent, the sheets come together at their edges, practically, and it is this that causes the wires to cut into the corners of the veneer. This

is not in the claim, and it is not in the defendant's box, or box blank, for the defendant spaces the sheets apart so widely in the blank that the sections fold relatively, without causing the wires to cut into the wood as shown in Fig. 4 of the patent in suit.

Furthermore, the defendant not only uses a blank which is not like the one described by claim 1 of the patent in suit, and which is not like the one shown and described in this patent, but it is also true that the defendant's box when completed is not like the one shown and described in this patent. Looking at Fig. 2 of the patent in suit, the box has step-mitered joints at the corners where the cleats come together, while in the defendant's box the cleats have square ends provided with tongue and groove formation, so that in defendant's box the cleats have interlocking engagement. This is of considerable advantage in defendant's construction, for defendant follows the practice set forth in the Craig patent, No. 1,208,297, which entirely obviates the necessity of inserting anything within the box during the setting-up operation and the fastening of the heads or end walls in place. In other words, the cleats on defendant's blank interlock with the cleats previously secured to the heads or end walls, whereby the end walls are immediately locked in place just as soon as the blank is folded around them, and before any staples are inserted to secure the cleatless sections of the blank to the heads or end walls. Thus, with defendant's construction, the work of setting up the box is all done from the outside, whereas in the patent in suit there is no such interlocking of the heads or end walls with the blank, and the consequence is that in the patent in suit the fastening of the heads or end walls in place necessarily involves the insertion of something within the box, and necessarily involves access to the interior of the box to perform the setting-up operations.

[fol. 218] With defendant's construction the semi-cleatless blank or semi-cleated blank (either expression is correct) may be wrapped around the heads or end walls, and the ends of the wires can then be twisted together, and the heads or end walls can then be, and are in practice, fastened in place by work done entirely from the outside, and then the wires can be untwisted to open the box for filling. In fact, the defendant's box can be filled and the wires twisted to-

gether, and the heads or end walls can then be secured in place by stapling the cleatless sections of the blank to the cleats previously secured to the thin strips which go to make up the heads or end walls.

Moreover, with defendant's construction, narrow strips or scraps of material can be used as the veneer for the heads or end walls, inasmuch as these heads or end walls are cleated by a separate machine, so that these cleats act as a binder to hold the narrow strips or pieces of scraps material together, as shown in Fig. 2 of the Craig patent No. 1,208,-297, just mentioned. Also, with defendant's construction, the cover of the box may be either one of the cleatless sections or one of the cleated sections, depending upon which one the user prefers to employ for this purpose. None of these things are possible with the construction shown in the reissued patent in suit, for this patent contemplates a full-cleated blank, and this means that the heads or end walls are not cleated and must be made in one piece, as shown in the patent. In other words, defendant can omit the center batten 14 shown in Fig. 2 of said Craig patent, for even without this the cleats 12 and 13 will hold the strips b together. In plaintiffs' patent the heads or end walls are not cleated, and the use of narrow strips or scrap material would necessitate the use of the center batten, but nothing of this kind is shown or even suggested in the patent in suit. The claim in question, therefore (claim 1 of reissued patent No. 12,-725), taken as it reads, does not describe defendant's box blank. The claim, following immediately on the heels of the disclaimer, is undoubtedly intended as a description of the full-cleated blank shown in Figs. 3 and 4 of the patent, and for the reasons pointed out, defendant does not use this method or this construction.

It may be alleged that the plaintiffs' box has the capacity of allowing the edges of the veneer to slide on each other, lengthwise of each edge, under stress, but nothing of this kind is stated, or even suggested or hinted at, in the reissue patent in suit. Moreover, this is a theory based on the use of step-mitered cleats, for with tongue and groove cleats, such as defendant uses, the alleged sliding of one edge on [fol. 219] the other is prevented. It will doubtless be asserted that this is possible under great strain, after the tongue and groove joint is broken, but the same thing must

happen in Rosback after the very weak film of wood is broken between the edges of the sheets. If the sturdy tongue and groove construction employed in defendant's boxes does not preclude the sliding action in question, then the weak and already cracked (the folding of the blank must weaken the little piece of wood between the edges of the sheets) and stretched piece of wood between the edges in the box of the Rosback patent No. 623,258 will not prevent this action. Moreover, this same action is possible in the box of the Healy patent No. 768,123, as here the pliable straps resist such sliding of one edge on the other, after the box heads break, and certainly when no heads are used. This patent says (lines 69-72):

"The box or crate may be used without the ends when lard and paint in cans is to be shipped, as the cleats will prevent the cans from slipping out."

When used this way, the flexible straps of the blank in Healy will yield laterally a little, under corner to corner pressure, but not so much as wires, but this is merely a difference in degree, and the straps of Healy function substantially like wires.

There is nothing in the reissue patent in suit about slippage of the wires under the staples. In defendant's box the wires are put on with heavy steel staples that are clinched under the blank, so that slippage of the wires under the staples is not possible or probable under the ordinary conditions of use. These are both features which are not in the patent in suit, either in the original or in the reissue thereof. The wires or "rods" of the box of the Howenstine patent No. 453,479 function in the same way and laterally resist relative displacement between the edges of adjacent sheets, if the strain is great enough and peculiar enough to disrupt the cleats from the heads. The wirebound box-blank of the Averill patent No. 661,481 when used on Ramsey's heads, patent No. 486,297 (Ramsey patented these heads for "orange and other boxes or crates"), does the same thing, and is like the box of the patent in suit, except that the sheets do not overlap at the corners of the box. In this Averill patent the fastening devices which secure the wires to the sheets serve also to fasten the sheets to the heads or end walls, and to the cleats if the user prefers to employ, as is obvious, the Ramsey cleated heads.

[fol. 220] Some of defendant's boxes are open at the corners like the Averill box, so that one side sheet does not overlap the edge of the next side sheet. Such boxes are exactly the same as the others, except for the overlapping of one sheet upon the edge of the other, and hence the open corner box thus produced does not even have the result stated in the form of a conclusion at the end of claim 1 of the reissued patent in suit. In such case, with the open-corner style of box, none of the cleats even in the finished box stop short of edges of the sheets. In fact, some of the cleats extend beyond such edges.

In the reissue patent in suit, the box-blank itself, without any heads or end walls, may be used as a complete box, just as stated in the Healy patent above mentioned. In that sense the plaintiffs box-blank can be called a box, and if it is asserted that claim 1 of the reissued patent in suit is a description of a box, such contention must be based on the capacity of the blank to serve as a box without any heads when bent around and fastened together by twisting the wires. The difference between plaintiffs' blank and defendant's blank is quite marked in this respect, for defendant's blank is only partially or semicleated and cannot serve alone as a box, for it has no stability without the cleated heads or end walls. In plaintiffs' blank, each and every sheet is reinforced with cleats, and the blank when folded presents a rectangular frame or open head at each end, thus giving the stability necessary for the use of the blank without any thin heads or end walls. In defendant's box, the cleatless sections of the blank are stapled to the cleats of the heads or end walls, from the outside, and it is not necessary to staple or fasten the thin veneer of the heads or end walls to the cleats of the blank, and this is not done in practice.

From the foregoing comparison of the structures of the box-blanks of the Inwood and Lavenberg reissue patent in suit, No. 12,725, and of defendant herein complained of, with each other, and with the boxes disclosed in the prior art patents before considered, it will be apparent that the two box-blanks are radically different in that the Inwood and Lavenberg blank can be successfully employed as a box without heads, because it is full cleated, and that defendant's blank cannot be employed as a box without heads,

because it is semi-cleated, and will therefore collapse unless heads are employed; that defendant's blank is not described by claim 1 of the reissue patent in suit, because it has no cleats that terminate short of the edges of the sheets; and that the blank of the reissue patent in suit is not distinguished from the box-blanks of the prior art by any [fol. 221] specified structure but only by the specific method by which it is made.

## The Machine Patents in Suit

I will consider the two machine patents together for the reason that whatever novelty is found in the device of No. 1,128,145 is likewise found more fully disclosed in No. 1,128,144, which discloses and claims a specifically novel portable carriage for assembling the wooden parts, i. e., the cleats and the veneer side pieces used in the expired reissue patent No. 12,725. No. 1,128,145 simply shows an old and well known machine for automatically applying the binding wires and clinching staples to the cleats and veneer sides assembled in the carriage of patent No. 1,128,144 to produce the completed box-blank of reissue patent No. 12,725. All the novelty of the alleged inventions of both machine patents in suit is found in the structure of No. 1,128,144, and patent No. 1,128,145, in my opinion, is merely an aggregation of the assembling carriage of No. 1,128,144 with an old and well known binding and stapling machine for applying binding wires to the wooden box elements assembled in said carriage.

## The Inwood & Lavenberg Patent No. 1,128,144

This structure is comparatively simple and is made up of the two side pieces 1, which can be adjusted to and from each other to produce box-blanks of different widths for making boxes of different lengths by the slotted bars 2 connected by set screws, all as will be readily apparent. These bars have the cleats A, seen in Figs. 5 and 7, resting on the surface 5. They are spaced apart in their necessary folding relationship by the blocks 6, which, as seen in Figs. 2, 3 and 4, are made up of two parts 7, which can be fastened together in the position shown in Fig. 2 by tightening up the set screw 10, in which position the adjacent ends of the cleats are brought as close together

as possible. If it is desired to separate them more, the two parts 7 are adjusted as shown in Fig. 4, and clamped in the adjusted position by the screw 10. This separates the ends of the cleats farther, as is necessary where the veneer side B is of greater thickness than that indicated in Fig. 5, where the adjustment is the same as shown in Fig. 2. The four cleats A on each side are assembled on the surface 5 between the blocks 7, as clearly shown [fol. 222] in Figs. 5 and 7, the spring 15 shown in Fig. 7 being used to hold the cleats A in their lateral position. They would tend to prevent the cleats getting out of adjustment, if they were not otherwise held in place by the blocks 7, as well as by the pressure of the overlying veneer side pieces B, which, as seen in Fig. 6, rest on the tops of the blocks 7 and are prevented from transverse movement relative to the same by the portions 16 of the blocks 7 which extend above the top of the main portion of the blocks. The veneer side pieces B are held in place once they are assembled, by the rod or bail 14 which is supported by the pair of arms 12, which are pivoted to the cross-pieces 2 at 13, and which occupy the position shown in Fig. 1 when the cleats and veneer side pieces are being assembled. When the assembling is completed, the bail 14 is swung over into the position shown in Fig. 6, where it rests on all four of the veneer side pieces B and holds them from displacement upward. If the blank is long enough, they are held from displacement longitudinally of the carriage or holder by contacting with the arms 12.

When the cleats A and veneer side piece B are assembled, as shown in Fig. 6, in the carriage, they could be secured together by hand, by placing the wire C along each side and nailing the staples D in place, straddling the wires, passing through the edges of the veneer side pieces B and into the body of the cleats A by using a hammer in the ordinary manner. The complete invention, however, contemplates stapling the wires C in place by the use of the machine shown in the companion patent No. 1,128,145, and, for this purpose, the bars 1 are provided on their bottom with the rack teeth 11 seen only in Fig. 2.

This assembling carriage or workholder is in its specific details novel, and the nearest approach to it that I have been able to find is that shown in

## The Fuller Patent No. 690,416

This "work conveying and presenting mechanism" bears a marked resemblance to the assembling carriage of patent No. 1,128,144, although specifically different because the product is different. It is intended to form the basket covers shown in perspective in Fig. 4, and it consists of a carriage body B mounted on wheels adapted to roll on the rails C so that the end pieces P corresponding to the cleats, and the top pieces 2, 2', corresponding to the veneer side pieces, can be assembled in the [fol. 223] proper relationship and brought beneath the nailing machine A seen in the center of Fig. 1. The end pieces P are fitted on the top of the body B between the pins M and the latch N, as indicated in dotted lines in Fig. 2, and when they are in place, the pieces Q, Q' are placed on top of them, as also indicated in dotted lines in Fig. 2 and are held in place by the abutments L on the four corners of the body B and the spring catches O, O'. This carriage is specifically different from that of the patent in suit, No. 1,128,144, because it makes only one side of a container, but resembles it sufficiently so as to prevent the grant of any broad generic claims in the Inwood & Lavenberg patent No. 1,128,144.

## The Inwood & Lavenberg Patent No. 1,128,145

This patent is for a stapling machine to be used in connection with the workholder or assembling carriage shown in companion patent No. 1,128,144, which carriage is shown somewhat sketchily in Fig. 1, where it is seen resting on the table 2 of the machine, which table 2 is supported from the legs 1. Journaled on the under side of the table 2 are a pair of elongated, toothed rollers 38, one on each side of the center of the machine, and connected at their ends by sprocket wheels 42 and a sprocket chain 43, shown in Fig. 3, which compels the rollers 38 to rotate in unison. The teeth of the rollers 38 engage the rack bars on the bottom of the workholder or carriage, and feed the same past the center of the machine beneath the staplers 8 which are carried by the cross head 7, which reciprocates in the guide 6 formed in the standards 5. These staplers 8 are very imperfectly shown, and no

means is shown for providing them with wires to make staples, the rolls 51 at the top of the machine being intended to furnish the binding wires, which wires are led beneath the guide rollers 52 which apply the wire to the edges of the veneer side pieces B when the work carriage is finally brought in place beneath the staplers. Without stopping to describe the details of the driving mechanism, it is sufficient to say that the power is furnished to the machine by the belt 14 co-operating with the belt wheel 13 which is connected by a clutch with the driving shaft, said clutch being thrown into and out of operative position by the hand lever 21 shown in Figs. 1 and 2. When the parts are clutched, the cross head 7 carrying the staplers 8 is reciprocated up and down at each rotation of the countershaft 24 by means of the [fol. 224] eccentrics 27 on said shaft operating through the links 28 connected to the cross head 7. The rolls 38 are rotated to feed the workholder beneath the staplers by the gearing best shown in Fig. 2, where a disk 31 is seen on the end of the countershaft 24 and provided with an eccentric pin 33 adjustably mounted on the disk and connected by the link 35 with the swinging arm 36 carrying a dog 37 which engages the teeth of the ratchet wheel 39 secured on the shaft of one of the rollers 38, so that at each rotation of the countershaft 24 the rollers 38 will be rotated a definite distance, depending upon the adjustment of the eccentric pin 33, to feed the workholder carriage forward a certain distance between each insertion of the staples. It will be understood that the downward movement of the staplers 8 occurs during the backward movement of the swinging arm 36 so that the workholder is at rest when the staples are actually applied, and advances when the staplers 8 are rising.

As the workholders have no fixed connection to the machine, and more especially no fixed relation to the staplers, the patentees had to provide means for bringing the workholders into the proper position relative to the staplers independently of the power applied to the machine, and, for this purpose, they employed the hand lever 44, seen in Figs. 1 and 2, which is provided with the dog or pawl 46 engaging the teeth of the ratchet wheel 39, so that by swinging the handle 44, the toothed rolls 38 can be rotated forward to bring the workholding carriage engaging one of the roll-

It is significant that claim 1 of the Knudson & Uhri patent No. 518,038, which did not expire until April, 1911, apparently described this machine, if it employed guides. Said claim 1 is as follows:

"In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally in their guides and with a sheet through the machine, an intermittently actuated staple driver adjacent to the path of each cleat, alternating in its action with said feed mechanism, to fasten the sheet, by successive operations to the cleat, and means for guiding strengthening wires with the cleats and sheets across the staple drivers, substantially as and for the purposes set forth."

The record in interference No. 27,004, in which the applications of the Inwood & Lavenberg patents Nos. 1,128,144 and 1,128,145 were involved with W. P. Healy, as assignee of Norman E. Brown, the opposing inventor, shows also that Inwood and Lavenberg then attempted [fol. 226] to have the application amended to include the guides, after originally setting out that it was a part of their invention to omit them, and this effort shows why the statement quoted from the application as originally filed does not appear in the patent as issued.

It is also of interest that the Patent Office, after awarding priority to Inwood & Lavenberg because Brown defaulted and took no testimony, subsequently granted to the plaintiff's herein, as assignees of Brown, on the interfering application, patent No. 1,276,484, which is of substantially the same scope as the Inwood & Lavenberg patent No. 1,128,145, except that it includes as a further limitation the employment of these guides which Inwood & Lavenberg swore they did not need. This indicates that the final belief of the Patent Office was that it was a patentable invention to add these guides to Inwood & Lavenberg's guideless machine.

## The Rosback Prior Art Patent No. 614,348

This patent shows a machine for making box blanks for the production of substantially the same wirebound box as

is shown in plaintiffs' reissue patent No. 12,725, the only difference being that instead of making the blank with four separate veneer sides stapled onto eight separate cleats, the blank, as seen in Figs. 14 and 15 of the Rosback patent, is originally made from one single sheet Y of veneer secured by the staples z to the cleats $Y^2$, the staples at the same time securing to the sides the binding wires z'. After the blank is thus formed, it is taken to the machine shown in the Rosback patent No. 609,630, or some similar machine, where it is treated in the manner shown on sheet 11 of said patent No. 609,630, Fig. 29 of which shows the blank before treatment, where it will be seen to be substantially identical with the blank shown in Fig. 14 of the Rosback patent No. 614,348. When the blank leaves the machine of the patent No. 614,348, the cleats $Y^2$ extending the entire length of the blank are solid unnotched bars, but after they pass first underneath the saws shown in Figs. 31 and 32 of the Rosback patent No. 609,630, and afterwards under the saws shown in Figs. 33 and 34 of said patent, each of the full length cleats is cut into the four short cleats shown in Fig. 30, and the veneer sheet is practically cut in two across the three dotted lines shown in Fig. 29, so that the box can be folded at each corner, as shown in Fig. 35.

Referring now back to the Rosback patent No. 614,348, [fol. 227] and more especially to Figs. 11 and 13, it will be seen that in feeding the veneer side member Y through the machine and upon the cleats $Y^2$, the edges of the veneer side are held frictionally between the under sides of the top flanges s and s' of the Z-bars B and the tops of the cleats $Y^2$, which cleats in turn rest upon and are pushed upward by the elongated bars B', which are pressed upward by the helically-coiled expanding spring $s^4$ surrounding the bolts $s^2$ connected thereto and held in any desired adjustment by the thumb-nuts $s^3$. Running below the flanges s and s', as seen in Fig. 11, are the sprocket chains F, and these sprocket chains have the lugs or flights F' secured thereto, each of which has two fingers, one projecting horizontally outward to engage the ends of the cleats $Y^2$, while the other projects upward to engage the end of the veneer side piece Y'. The result of this construction is that as the chain F is pulled through the machine, the flights F' engaging the cleats and the side piece force them through the machine against the friction caused by the upward pressure of the

bars B' squeezing the cleats and veneer side piece between said bars and the under side of the horizontal flanges s and s' previously referred to. By reference to Fig. 2, it will be seen that the sprocket chains F extend the entire length of the machine, and each is provided with two of the flights F', as seen in dotted lines at the two ends of the machine. The machine is provided, as best seen in Fig. 4, with two staplers M', which are operated to staple the wires z' onto the veneer sheets, as seen in Figs. 14 and 15.

## The Defendant's Machine

The defendant's machine is manufactured in substantial accordance with the Craig patent No. 1,258,989, and as seen in Figs. 1 and 3, is constructed substantially in accordance with the disclosure of the Rosback patent No. 614,348, so far as the general combination of elements is concerned, and more especially so far as the mechanism for feeding the cleats and veneer side sheets through the machine is concerned. As is readily seen, it has two sprocket chains D, running the length of the machine, just as in the Rosback machine, and these sprocket chains have the flights shown in Figs. 12 and 13 thereon to push the cleats and the veneer side sheets through the machine. As these details are best shown in Figs. 1, 2 and 3 of "Plaintiffs' Exhibit Drawings of Defendant's Machine," I will refer to [fol. 228] them, where it will be obvious that the bars I have the cleats, as shown in Fig. 2, resting thereon in the same manner as the cleats of the Rosback patent No. 614,348 rest on the bars B' of said patent. It will also be apparent that the chains have the flights C' secured thereon, the alternate flights having the horizontally-extending pusher lugs D engaging the rear ends of the cleats, while the vertically-extending pusher lugs E engage the rear edges of the veneer side sheets. As defendant only puts cleats on the alternate sheets, the intermediate flights marked C² and C³ on Plaintiffs' Exhibit Drawing have only the vertical pusher lugs E, and not the horizontal pusher lugs D, since there are no cleats to co-operate with these intermediate flights. The cleats are supported by the bars I and are pushed along the same against

the resistance of their friction against said bars and the guide pieces H by the drag of the chain, just as the cleats in the Rosback machine No. 614,348 are pushed along by the drag of the chains (against the friction) between the bars B' and the overhanging flanges s and s'. The veneer side pieces, however, do not have their edges held down by the guides, but they are supported on the chain until they substantially reach the stapling point, before which time they pass underneath the elongated pivoted presser bar J, shown in Fig. 2 of Plaintiffs' Exhibit Drawings of Defendant's Machine, they being thus held down during the time that the staples are applied. It is true that, as shown in Fig. 4, the machine is supplied with a hand lever K, by which the chain feed can be operated manually when needed, but this hand lever is not needed for the same purpose as the hand lever 44 of the Inwood & Lavenberg patent No. 1,128,145, since the staplers have a certain fixed time of operation relative to the location of the flights on the chain, so that independent adjustment of the chain relative to the staplers is not necessary. In the operation of defendant's machine, which runs steadily, no preliminary positioning by the use of the hand lever has to be employed, such as is necessary in the machine of the patent in suit.

Comparison of Defendant's Machine with the Machines of the Patents in Suit

In the application of plaintiffs' patent No. 1,128,144, as originally filed, there occurs the following disclaimer of prior art structures:

"It has been the practice heretofore in the manufacture of wire-bound boxes to assemble the cleats and sheets to be [fol. 229] stapled in guides forming an integral part of the stapling machine, and mechanisms co-operating with the stapling machine to contact with and slide the cleats longitudinally in their guides under the stapling devices, the guides remaining stationary."

The patentees, Inwood and Lavenberg, when they entered the foregoing disclaimer, undoubtedly had in mind the Rosback machine, such as shown in patent No. 614,348,

for here the endless conveyer belts have the cleat pushers and sheet pushers for feeding the cleats along the guides with the sheets resting on the cleats to the mechanism for stapling the wires to the sheets and cleats. Now, the foregoing description of defendant's machine shows that fundamentally it is not like the machine of the two Inwood & Lavenberg patents in suit, but, on the contrary, is like the machine of the Rosback patent. In fact, the above-quoted disclaimer is a description of defendant's machine, so far as the fundamental or work-feeding means is concerned. Defendant's machine has guides in which the cleats slide, these guides being stationary, and in both the Rosback machine and defendant's machine these guides are adjustable laterally for blanks of different widths. Defendant's machine has endless feed belts provided with cleat pushers and sheet pushers, and so has the Rosback machine. Defendant's machine has as many cleat pushers for each blank as there are cleats on the blank to be stapled, and so has the Rosback machine. Defendant's feed belts have four cleat pushers for each blank, because there are only four cleats on each blank to be stapled, and the Rosback machine has two cleat pushers for each blank, because there are only two cleats on each oncoming blank to be stapled. Defendant's work-feeding means and guides are "an integral part of the stapling machine," like those of the above-mentioned disclaimer, and like those of the Rosback machine. In defendant's machine the friction between the cleats and the guides is a retarding force and serves to keep the rear ends of the cleats against their respective pushers, and the same is true in the Rosback machine. In defendant's machine there are sheet pushers which push the sheets forward and which position the sheets on the cleats, and this is true in the Rosback machine. In defendant's machine the number and positions of the cleat pushers are determined by and dictated by the number and positions of the cleats on the oncoming blanks to be stapled, and this is also true of the Rosback machine. The only difference, therefore, is that [fol. 230] in defendant's machine there are four cleat pushers and eight sheet pushers for each blank, whereas in Rosback there are two cleat pushers and two sheet pushers for each blank, but this is more a difference between the

two products and the two methods than it is a difference between the two machines, for fundamentally and in principle the two machines use the same work-feeding and assembling means, and in the use of such means the number and positions of the lugs or flights or pushers on the endless belts are matters which are determined by the character of the product to be produced by the machine.

It was old and common prior to the alleged inventions of the said patents in suit to make wirebound box blanks which were foldable as the immediate result of the stapling and wiring operation, and without any further treatment such as Rosback found necessary, and for which he employed the machine shown in his patent No. 609,630, above considered. In the Lipps & Springer patent No. 801,998, granted October 17, 1905, on an application filed June 30, 1902, in Fig. 14, sheet 2, appears a four-section wirebound box blank, and in Fig. 2 below, the machine is shown for making the blank. This machine has endless feed belts 15, with sheet pushers and spacers 16 for spacing apart and pushing the four sheets of the blank, and as there are only two link belts it follows that there are eight sheet pushers for each blank. This is like defendant's machine, as defendant uses the same arrangement of lugs or spacers and link belts to position and feed the sheets forward.

The same sheet spacing and feeding means are employed in the Greenstreet patent No. 579,574, granted March 30, 1897, and in this patent it is stated that (lines 30 to 39, page 3):

"The machine, as shown in the drawings and here explained, is for making a shipping case, the sides of which are constructed from a series of slats; but I am able to bind with wire and secure by staples tight boxes, that is, boxes the sides of which are made from one piece material or one or more pieces to the side, the only change required being probably a difference in the spurs on the chain and in the absence of the feed slides."

In the same way, the Rosback machine No. 614,348 is "able to bind with wire and secure by staples tight boxes, that is, boxes the sides of which are made from one piece material or one or more pieces to the side, the only change

required being probably a difference in the spurs on the [fol. 231] chain"; and defendant's machine, having been designed with special reference to the manufacture of defendant's box blank, is essentially the Rosback machine with the spurs on the link belt or feed chains arranged in accordance with the peculiarities of the product to be made thereon. In other words, in the use of endless link belts or feed chains and stationary guides, there will obviously be as many pushers on the link belt as there are things to be pushed or carried forward, and these pushers are placed on the chains at the points where they are needed, and at the points dictated by the shape and configuration and structural character of the article to be made. For example, it is obvious that defendant's machine, so far as the work-feeding means are concerned, could be used for making a blank with two cleats on each and every sheet or section thereof, by simply increasing the number of cleat pushers on the chains. The Rosback feed chains and guides can be used for feeding any desired form of blank, or other article, by merely placing lugs or spurs or pushers wherever they are needed on the two link belts or feed chains. It was therefore a mere matter of mechanical skill for the designers of the defendant's machine to see just how to use the work feeding and assembling means of the Rosback patent No. 614,348 for the manufacture of defendant's box blanks. The box blank itself told the designer, say, with the Craig patent No. 1,208,297 in one hand and the Rosback patent No. 614,348 in the other hand, just what was necessary; for the box blank virtually said:

"If you make me on the Rosback work feeding and assembling means you must give me two sheet pushers for the rear edge of each sheet, and you must also place on the chains a cleatpusher for each of my four cleats";

and this is what the designer proceeded to do in building the defendant's machine, for the box blank itself showed him just what was necessary. After the invention of the box blank shown in the Craig patent No. 1,208,297, the work feeding or assembling means were then ready at hand in the Rosback patent No. 614,348 for the production of the blank. For the short blanks of the kind shown in the

Craig patent No. 1,208,297, the lugs or pushers on the link belts would be placed closer together.

For defendant's blank, the uncleated sections thereof would be supported by the chains, or on stationary tracks, and would be stapled on anvils presented below, as is com- [fol. 232] mon in the various prior patents. In Rosback No. 614,348, the link belts do not support the cleats, and this is exactly like defendant's machine; but in Rosback No. 608,796 the cleats rest on the belts, which latter advance with an intermittent feed movement like the feeding motion of defendant's machine, and in this patent Rosback says (lines 34-37, p. 1):

"The cover portion of the box may be fastened down by twisting the projecting ends of the strengthening-wires together."

Farther on he says (lines 51-81, p. 1):

"Broadly stated, the machine involves cleat-guides relatively adjustable to position the cleats Z' for blanks of different widths, guides also adjustable with the cleat-guides for the opposite edges of the sheet Z, tacking or stapling devices above the path of the sheet and cleats adjustable with the cleat-guides, and feed mechanism for a strengthening-wire Z² at each staple device. At the cleat-guides is preliminary feed-operating mechanism which when the cleats and sheet are placed in their guides may be operated to advance the material to the staple-drivers. The feed mechanism which advances the blank material beneath or across the staple-drivers and strengthening-wire feeders is intermittent in its action and alternates with the staple-drivers, so that the material is at rest while the staples are being driven.

"The machine further involves mechanism for severing the strengthening-wires when a blank has passed from beneath the staple-drivers and for stopping the machine until material for another blank has been advanced to the staple-drivers.

"Lastly, the machine involves 'skipper mechanism,' which at predetermined intervals in the passage of the blank accelerates the feed thereof, so that staples will not be driven at points where the step-miter cuts are afterward to be made."

In No. 614,348, Rosback says (lines 26-39, p. 1):

"The difference between the present machine and the said former machine lies mainly in the fact that while in the former machine the blank material was fed intermittently through the machine, alternating with the action of the staple-drivers or tacking devices, in the present [fol. 233] machine the blank material moves steadily instead of intermittently through the machine, the staple-drivers or tacking devices being mounted upon an oscillating or swinging support, which while the devices are performing the tacking operation moves with the blank material."

The Rosback machine, of course, does not necessarily have to be made for box blanks of the maximum length for it is easily conceivable that a user of only small boxes would want a machine with the lugs set on the feed belts for the short blanks only. This is within the purview of the Rosback patents, and it results immediately in a feeding means capable without any alteration of feeding long sectional blanks like defendant's or plaintiffs' blanks. The defendant has used the Rosback feeding and assembling means as the "fundamental" of its machine.

The Inwood & Lavenberg work-controlling means or assembling carriage is radically different from the work feeding and assembling means employed in defendant's machine. In these Inwood & Lavenberg machine patents there is absolutely nothing by which to space the sheets apart at their edges, and their edges meet. In defendant's machine, the endless feed chains have the upstanding lugs E (see "Plaintiff's Exhibit Drawings of Defendant's Machine," Fig. 1), which engage the rear edges of the sheets, as in Rosback No. 614,348, and which space the sheets apart a considerable distance, as in the Greenstreet patent No. 579,574, or in the Lipps & Springer patent No. 801,998. The Inwood & Lavenberg patents have the spacer blocks 7 interposed between the ends of the cleats. Defendant's machine has no spacer blocks and no cleat spacers of any kind, inasmuch as in defendant's machine and with defendant's method the cleats are not arranged or assembled substantially end to end, as they are in the Inwood & Lavenberg patents. On the contrary, in defendant's ma-

chine the cleats in their guides are always a distance apart equal to or even greater than the length of a cleat itself, or approximately equal to the intervening cleatless section of the blank. Consequently, in defendant's machine, the cleat pushers engage the rear ends of the cleats, but do not and cannot possibly engage the front ends of the cleats behind, and each cleat, so far as these pushers are concerned, is free to slide forward a distance equal to its length until it would find itself below the cleatless section of the blank. In defendant's machine, no cleat spacers are necessary, for the friction of the cleats in the guides keeps each cleat with its rear end against its allotted pusher, which is the same ex- [fol. 234] pedient employed in the Rosback patent No. 614,348, for in the latter the cleats slide in guides, and their rear ends are thus maintained against their allotted pushers. In the Inwood & Lavenberg machine patents, the cleats and sheets are placed in a portable workholder or former, which is stationary while the assembling of material is being performed, so that the workman can take as much time as he wants in which to assemble all the different parts of the box blank to be made, and then clamp the parts in place by the swinging clamp 12, 14, that bears down on top of the sheets. In defendant's machine, the work-feeding means are in movement constantly, and the attendant places the cleats and sheets in position against the forwardly moving cleat pushers and sheet pushers, and if the attendants are skilled, they may stand close to the staplers and feed but one sheet at a time under the staplers, but in any event the sheets and cleats are delivered directly to the machine itself, and are not first placed in a portable former or carrier. Defendant's machine can run continuously hour after hour without stopping, turning out box blanks one after the other in a very rapid manner, whereas in the Inwood & Lavenberg machine of the patents in suit the machine must be stopped every time a blank is completed, for otherwise the machine, if allowed to run between blanks, would keep on making staples and throwing them out. There is nothing in the patents in suit to insure uniform spacing between the blanks, and there is nothing to prevent the driving of staples between the blanks, or between sections of the same blank, the whole thing being

blank to the staplers by use of the handle 44, and the formers or workholders might and probably would follow each other at irregular intervals, as any attempt at spacing between the blanks would depend on the eye and mechanical dexterity of those who placed the materials in the workholders and of the man feeding the loaded workholders through the machine. In the application of the Inwood & Lavenberg patent No. 1,128,145, as originally filed, the following statement occurs:

"When the first former is ready to be fed into the machine, the lever 44 is raised and by means of the dog 46, the ratchet wheel 39 may be rotated to impart initial feed to the feed rollers 38, thus bringing the former with the blank material, into proper position for receiving the first staple, which position is such as to prevent a staple being [fol. 235] driven at a point adjacent to the miter of the cleats, and thus the use of an automatic skipping mechanism is obviated." (Lines 2 to 9, page 7.)

There is nothing in the patent to indicate why this procedure is not necessary with each subsequent blank, as well as with the first one, and as I understand the necessary operation of the machine, it would have to be stopped by meluteching it just as soon as each blank was stapled, and then fed forward by using the hand lever 44 until sufficient wire was paid out for the twisted ends, and until the next assembling carriage, with its blank parts, was in position to begin stapling. Previous to the last quoted statement from the Inwood & Lavenberg application as originally filed was the following:

"In order to give an initial or preliminary feed to the toothed rollers 38, so as to bring the box blank in a convenient position beneath the staple drivers for the insertion of the first staple, suitable mechanism is provided for manually adjusting the ratchet wheel 39. This mechanism consists of a lever 44, pivoted to a standard 45 and having a dog 46 arranged to be engaged with the teeth of the ratchet wheel when the lever is moved upwardly by the operator, and thus a preliminary feed is given to the ratchet wheel independently of the vibrating frame 36." (Lines 7 to

If a "preliminary feed" is necessary for one blank, in order to get started right through the machine, it is not apparent why the same procedure is not necessary with each succeeding blank, and there is nothing in the Inwood & Lavenberg patent which attempts to explain this. The patent itself, No. 1,128,145, contains this statement:

"In operating the apparatus shown and described, the carriages or formers may be fed into the machine one after the other in a manner to obviate the necessity of stopping the machine after each blank is stitched." (Lines 117 to 122, page 3.)

There is no explanation in support of this assertion, and the original application contains no such statement.

Another characteristic which shows how fundamentally different defendant's machine is from the ones shown or described in the patents in suit: In the workholder of the machine patents when the cleats are inserted they are held against sidewise movement by the sides of the rail or by the rail side on one side and a spring on the other. They [fol. 236] are held at the ends by the spacer blocks, and in fact they are seated in pockets which positively prevent movement in any direction. This, in a sense, may be an advantage—at least for plaintiffs' type of product. A workman, no matter how unskilled, can place the cleats in a holder and be immediately advised as to whether the cleat is or is not of the proper size to obtain a "foldable relation" with the adjacent cleats. If a cleat is too long it simply cannot be inserted into the machine at all. If it is too short, that fact is immediately obvious even to the most ignorant or careless workman. In a factory producing boxes of different sizes and styles, cleats of various lengths are kept on hand, but the workholder of plaintiffs' patent will instantly demonstrate whether the cleats which are being introduced are or are not the proper one for the work in hand. In defendant's machine there is nothing even akin to this. A cleat may be either too long or too short, but there is nothing to prevent it from being placed in the stationary guides and pushed forward and stapled as if it were correct in every way. It will be understood that in practical operation men are ranged along the sides of the machine, and their duty is to drop cleats into the

guides and then place cleats on top of them, and they are much too busy to note whether the individual cleats are of correct length or not. If the cleats are too short they will not co-operate with the cleats fastened to the box end, nor will they do so if they are too long, and yet in defendant's machine it might easily happen that a number of blanks would be manufactured before the discovery were made that the cleats were not the ones intended. Differently stated, the machine patents in suit show a "cleat-holder" or "work-holder" in the true sense of the term, and the cleats are positively held against movement either forward, backward or sidewise. In defendant's machine with its long continuous guides there is nothing to hold the cleats endwise and there is nothing by which a workman can determine whether the cleats he is using are or are not of a proper length. To my mind a workholder is a definite thing—that is, something which will truly hold the work in a definite and predetermined position or relation to other parts of the work. If this is correct, the defendant's machine with its long continuous stationary guides and its traveling pushers which are located as far apart as twice the length of a cleat, has nothing that can be properly termed a workholder, nor has it anything that can be properly said to hold the parts of the work in "foldable" relationship. In this respect the Inwood & Lavenberg [fol. 237] workholder is truly a "former," which defendant's feed chains and cleat pushers are not, and obviously for this reason the two structures are radically different.

In conclusion of the foregoing comparison of defendant's machine with the machines of the patents in suit and with the pertinent prior art machines, I may say that it is obvious that defendant's machine is constructed in accordance with the teachings of the prior art, and not in accordance with the teachings of the patents in suit.

The Claims of the Inwood & Lavenberg Patent No. 1,128,144

I am advised that infringement is alleged of claims 6, 26, 37, 38, 39 and 40 of this patent. A reading of these claims brings out one characteristic, which is true of many of the other claims involved in this suit—that is, they are indefinite and to a great extent meaningless unless one or

more assumptions are made which are not based on anything in the claims themselves. Taking claim 6, for example, simplified, it calls merely for cleat positioning means and cleat spacing means. Obviously cleat spacing means are cleat positioning means, and there is nothing in the claim to indicate what is meant by cleat positioning means. There is no recital as to whether the positioning is sidewise, endwise or in a vertical direction. To make anything out of the claim, therefore, it is necessary to assume that the cleat positioning means is intended to mean mechanism for positioning the cleats sidewise. Lack of space forbids a detailed criticism of all of the claims with respect to their language, but I may say that many of the claims declared upon are extremely indefinite and can only have a meaning by guessing at what is intended.

With the foregoing qualifications, I find that claims 6 and 39 are for substantially the same combination of elements; that claims 37, 38 and 40 are for substantially the same but slightly different combination of elements; and that, finally, claim 26 is for a substantially different combination of elements. Claims 6 and 39 are as follows:

"6. Work-controlling means for use in the manufacture of wirebound boxes comprising, in combination, cleat-positioning means to receive a plurality of rows of cleats dis- [fol. 238] posed substantially end to end, and cleat-spacing means relatively adjustable to suit individual cleats of different lengths to be received in said positioning means.

. . . . . .

"39. Work-controlling means for use in assembling box parts to be folded and secured together in making boxes, comprising, in combination, cleat positioning means to receive a plurality of cleats disposed substantially end to end; and means to space endwise apart one said cleat for a given side of the box and another said cleat for a non-adjacent side of the box, a distance appropriate to dimensions of a desired intervening box slide (side)."

In quoting the above claims I have underscored the phrase "disposed substantially end to end" to call attention to this limitation, which is obviously not found in defend-

ant's machine, because none of the cleats are "disposed" even "substantially end to end," since the succeeding cleats are spaced apart at least the width of the intervening side. Coming down to the actual elements, and referring to claim 6, the "cleat positioning means to receive the plurality of rows of cleats disposed substantially end to end" is obviously the bars 1 connected by the adjustable cross pieces 2 and having the sides 4 and the bottom 5 on which the cleats rest. The "cleat-spacing means relatively adjustable to suit individual cleats of different lengths to be received in said positioning means" are obviously the blocks 7 which determine the distance the cleats shall be spaced apart. Obviously, defendant has no structure that substantially corresponds to this, as in defendant's structure, the nearest approximation to the first element would be the stationary guides in which the cleats are slid, and the nearest approach to the second element would be the cleat pushers on the chains, and as already pointed out, these do not serve "relatively to position the adjacent ends of the cleats in each row in co-operative foldable relationship," since none of the cleats carried by the machine fold or co operate with the other or adjacent cleats carried by the machine, but they do co-operate with the separate cleats, not carried by the machine, but placed on the heads of the box, reference being had to the cleats 12 and 13 shown in the Craig patent No. 1,208,297, which are never in the blank-making machine. If this claim and the corresponding claim 39 above quoted, which is directed to the same combination of elements, are construed broadly enough to cover defend-[fol. 239] ant's radically different construction, then they clearly define nothing that is substantially different from the structure of the Rosback patent No. 614,348. It is a question as to whether or not these claims, even if construed properly, and not expanded, describe anything that is substantially different from the structure shown in the Fuller patent No. 630,416, previously considered, where the carriage B on which the end pieces P' (these are cleats) are placed would correspond to the first element and the members L, M and N would correspond to the second element.

I note that claim 39 describes the spacing of one cleat relative to a "cleat for a non-adjacent side of the box, a dis-

tance appropriate to the dimensions of a desired intervening box side." This is a peculiar method, to say the least, of describing the spacing of the cleats, since nowhere does the specification and drawings show a blank with any cleatless sections.

Claims 37, 38 and 40 are as follows:

"37. Work-controlling means for use in assembling box parts to be folded and secured together in making boxes, said parts including side material foldable along substantially parallel corner lines to provide box sides and box members to be secured in pairs to said side material between and disposed transversely of corner lines thereof and near the extremities of said corner lines—comprising, in combination, positioning means, to receive said members in pairs disposed substantially end to end, constructed and arranged to space one said pair from another a predetermined distance permitting said pairs to be foldably connected and folded into a predetermined relation in forming a box; and means to position side material relatively to said pairs of members to be foldable therewith.

"38. Work-controlling means for use in assembling box parts to be folded and secured together in making boxes, comprising, in combination, cleat-positioning apparatus for a plurality of cleats disposed substantially end to end, constructed and arranged to space said cleats apart endwise a predetermined distance to permit them to be foldably connected and folded into a predetermined relationship in forming a box; and means to position side material extending over and upon said cleats and the spaces between them.

. . . . . .

[fol. 240] "40. Work-controlling means for use in assembling box parts to be folded and secured together in making boxes, said parts including side material foldable along substantially parallel corner lines to provide box sides, and box members to be secured in pairs to said side material between and disposed transversely of corner lines thereof and near the extremities of said corner lines—comprising, in combination, positioning means, to receive said members in pairs disposed substantially end to end, constructed and arranged to space one pair for one box side,

from another pair for another and non-adjacent box side, a predetermined distance appropriate to intended dimensions of an intervening side, permitting said pairs to be foldably connected and folded into a predetermined non-adjacent relation in forming a box; and means to position side material relatively to said pairs of members to be foldable therewith."

These three claims differ from 2 and 39, heretofore discussed, in that they include as an additional element (claims 37 and 40):

"means to position side material relatively to said pairs of members to be foldable therewith."

and (claim 38):

"means to position side material extending over and upon said cleats and the spaces between them."

These means are evidently the upper surface of the blocks 7, and the extensions 16 of the outermost sections of the blocks 7, which support the veneer side pieces B and prevent their being displaced transversely of the holder. This additional limitation adds nothing of novelty to the device, since such holders are shown in the Fuller patent No. 690,416, already discussed in connection with this structure. The defendant's machine does not contain the combination of elements defined in these three claims for the reason that the feed mechanism therein does not dispose the rows of cleats "substantially end to end," as called for by all of these claims. If these claims be construed broadly enough to cover defendant's radically different conveying mechanism for the cleats and veneer side pieces, they define nothing substantially different from the structure of the Rosback patent No. 614,348, and similar devices in the prior art.

The final claim to be considered, No. 26, is as follows:

[fol. 241] "26. Work-controlling means for use in the manufacture of wirebound boxes comprising, cleat-positioning means for a succession of cleats; means to position longitudinally with respect to the cleats, side material extending over and upon such succession of cleats; and means acting upon a surface of the side material for maintaining the same in a proper plane relative to the cleats."

This claim is seemingly of a different scope from Nos. 37, 38 and 40, just discussed, since the phrase

"means to position longitudinally with respect to the cleats, side material extending over and upon such succession of cleats"

would seemingly include in addition to the tops of the blocks 7 and the portions 16 mentioned in the discussion of claims 37, 38 and 40, also the arms 12, which determine the longitudinal position of the side sheet material with reference to the cleats, since none of the other elements mentioned have any limiting effect upon the longitudinal movement of the side pieces. When the bail 14 is turned down in place, obviously the veneer side pieces B, as seen in Fig. 6, cannot be displaced longitudinally due to their contact with the arms 12. This, of course, is true only in case a full length blank is made. If the blocks 7 were adjusted for a shorter blank, the arm 12 at one end only could engage the adjacent sheet or side piece.

The final element, "means acting upon a surface of side material for maintaining the same in a proper plane relative to the cleats," obviously refers to the bail 14, which, when swung over into the position shown in Fig. 6, has the action on the upper surfaces of the sheets B of veneer set out in the claim. The element is especially essential in the use of the Inwood & Lavenberg assembling carriage or workholder, since without it, the action of the staplers would be to displace the veneer side pieces B, whereas it is not essential in defendant's structure, where the sheets of side material are forced forward to their work against the resistance offered by the staplers by reason of the engagement of the sheet pushing lugs E with the rear edges of the sheets. I understand plaintiffs contend that the members J, shown in Fig. 2 of "Plaintiff's Exhibit Drawings of Defendant's Machine," is the corresponding element, but there is nothing novel about this element in a structure like defendant's, although it may be novel, so far as I know, as applied to a structure like that of the patent in suit, No. 1,128,144. In the Rosback patent No. 614,348, [fol. 242] the horizontal flanges s and s' have the same action as the bail 14 in holding the sheets Y' of veneer side material in place upon the cleats as the blank passes through

the machine, and a similar device having the same purpose is shown in the Rosback patent No. 625,958, where will be seen a guiding and feeding device for a plurality of blanks Y, consisisting of the angle irons B and a pusher g' carried by the pair of endless sprocket chains e', corresponding to the feed chains of defendant's structure. The means for holding these sheets down upon the cleats are the pair of bars k supported from the cross rods h, and which extend over the side sheets Y of veneer material in a manner that resembles the elements J of defendant's machine much more than the bail 14 of the patent in suit. Accordingly, I am of the opinion that if the claim under consideration be construed broadly enough to cover defendant's radically different blank feeding mechanism, it defines nothing substantially different from the structure of this Rosback patent No. 625,958, as defendant's apparatus herein complained of resembles that of this Rosback patent much more than it does the structure of the Inwood & Lavenberg patent in suit No. 1,128,144.

The Claims of the Inwood & Lavenberg Patent No. 1,128,145

I am informed that complainants contend that defendant's machine herein complained of contains the structure defined by claims 17, 46, 56, 57, 58 and 61 to 66, inclusive, of this patent. I cannot agree with this contention, as defendant's structure herein complained of is so radically different from the structure defined in the claims above referred to that if said claims be construed broadly enough to cover defendant's radically different construction, they define nothing substantially different from the structures of the prior art, and notably from that of the Rosback patent No. 614,348.

After an analysis of these claims which are in the main vague and indefinite, in an apparent effort to make something out of nothing, I find that they may be grouped as follows with reference to their scope: Group 1, 61 to 66, inclusive; group 2, 25, 56, 57 and 58; group 3, claim 46; and group 4, claim 17.

Claims 61 to 66, inclusive, are, for the purpose of the present inquiry, substantially identical, and, in fact, seem

intended to cover broadly any sort of a work controlling [fol. 243] means (such as the workholder of patent No. 1,128,144) adapted to receive the cleats and side pieces necessary to produce the box blank of the Inwood & Lavenberg expired reissue patent No. 12,725, in an alleged combination with the stapling machine which is shown in patent No. 1,128,145. This is assuming that the final clause, "means for foldably connecting the cleats so spaced," which really describes the binding wires and staples, is intended to refer to the stapling machine. As an example of these claims, I will quote No. 62, as follows:

"62. A machine for making box-blanks comprising, in combination, work-controlling means to receive a plurality of cleats disposed substantially end to end, and pertaining to intended oppositely disposed sides of the box, constructed and arranged to space said cleats apart endwise a predetermined distance permitting the cleats to be foldably connected and folded into oppositely disposed relationship; and means for foldably connecting the cleats so spaced."

It will be noted that the first element, the workholder of patent No. 1,128,144, is described simply as means to hold the cleats in the relationship needed to produce the box-blank of the Inwood & Lavenberg reissue patent No. 12,725, the structure being defined purely by its function, and not by any novel features thereof. All of the claims of this group contain the limitation of the work holding means being adapted "to receive a plurality of cleats disposed substantially end to end," and this does not describe defendant's guides and feeding chains, since they do not dispose the cleats "substantially end to end," as pointed out in connection with patent No. 1,128,144. The final clause, "means for foldably connecting the cleats so spaced," would have reference to the stapling machine incompletely disclosed in this patent, and which might be answered by a hammer, the necessary wires and staples, in the hands of a workman, as it is entirely possible, if not commercially practicable, to apply the binding wires and staples by hand. I note that these claims, Nos. 61, 62, 63 and 66, all have the "non-adjacent sides" limitation which I referred to in connection with claims 39 and 40 of patent No. 1,128,144, apparently

as an attempt to describe defendant's construction rather than that of the patent in suit, presumably to mislead anybody who should consider the patent. If these claims could be construed as for a patentable combination, instead of a mere aggregation, and as for a mechanism rather than a [fol. 244] statement of function, in order to contain any shred of novelty, they would have to be construed as limited to a structure adapted to produce the specific full-cleated box blank of the Inwood & Lavenberg reissue patent No. 12,725, as if construed to cover the specifically different defendant's machine adapted to produce the different box-blank of the Craig patent No. 1,208,297, they certainly do not define anything substantially different from what is shown in the Rosback patent No. 614,348.

As an example of the second group, I will quote claim 25, as follows:

"25. A machine for making box-blanks comprising work controlling means having cleat positioning means to receive sectional cleats in parallel lines, and spacing means to space cleats endwise from each other in each line, preparatory to connecting said cleats in their spaced relation, said work controlling means being arranged to receive side material to be secured to said cleats; fastener applying means for securing binding means to the side material and cleats controlled by the work controlling means; means for relatively feeding the work controlling means and fastener applying mechanism for securing said binding means across the intervals between said spaced cleats to secure them together in their spaced relations to form a foldable blank."

It will be noted that the main difference between this and the claims of the first group discussed is that in the first group, the side material was not mentioned, and the said first group of claims is satisfied by a structure that fastens the cleats together without utilizing the side material. In the second group, the side material is included by the requirement that the "work controlling means" be "arranged to receive said side material to be secured to said cleats." This additional limitation adds nothing of novelty to the claim, and consequently the claims of this group are no more novel and no more descriptive of defendant's radically different machine than are those of

the first group. Claims 56 and 57 of this group do not describe defendant's construction not only because the latter is radically different from the structure of the patent in suit, but for the further reason that the claims require that the cleat feeding means shall feed or receive the cleats "disposed substantially end to end," and, as already pointed out, defendant's cleats are not so disposed, but are spaced apart by a distance greater than the length of the intervening side.

[fol. 245] Claim 46, constituting the third group, is as follows:

"46. A machine for making box blanks comprising, in combination, work-controlling means constructed and arranged to position a plurality of box sections in cooperative foldable relationship; fastener-applying mechanism for connecting the adjacent box sections; and means for relatively positioning one of said box sections and said fastener-applying mechanism for applying a fastener in the desired relation to an edge of said section."

This claim calls for the alleged combination of the work-holder of patent No. 1,128,144 with the stapling machine of patent No. 1,128,145, with the additional final element, which is the hand lever 44 fulcrumed at 45 and having the dog 46 co-operating with the ratchet wheel 39, so that by manipulating the hand lever 44, the front end of the work-holder which is engaged with the elongated gear pinion 38, as shown in Fig. 1, may be worked forward by hand until the front side sheet and the front pair of cleats beneath it are brought into the proper relation-ship with the staplers 8 so that as soon as they are thrown into operation the box-blank in the workholder will be in the proper position to fasten the binding wires to the proper part of the edge of the leading veneer side piece.

There is nothing novel about this hand feed device, as it is shown in the Knudtson & Uhri patent No. 518,038, in the mechanism described in the paragraph beginning with line 133 of page 8 of the specification. That its purpose is the same and that it is a hand-operated device is evident from the opening sentence of said paragraph, which is as follows:

"P is a sliding frame which is operated by hand as hereinafter explained, its function being to feed the sheets

Z' and cleats Z' forward initially until they are engaged and advanced by the feed rollers of the machine."

Even if this feature were novel, it would be immaterial to the present controversy for the reason that defendant's machine has no such means. As previously explained, once defendant's machine is adjusted and started, the cleats and veneer side pieces for the various blanks are placed by hand on the feed chains, and said feed chains are geared up to the stapling mechanism so that the side pieces and blanks are automatically presented to the staplers in just the proper relationship so as to begin the stapling at the [fol. 246] proper place and leave the correct amount of wire at each end of each blank so to enable the boxes to be finally fastened. Defendant's machine contains no device or apparatus corresponding to that of the patent in suit, and while it does have the lever K shown in Fig. 4 of "Plaintiffs' Exhibit Drawings of Defendant's Machine," said lever is merely used to advance the chain during the preliminary positioning of the cleat and sheet pushers on the chain preparatory to starting up the machine for a run on a certain set of blanks, and is not used during the normal operation of the machine.

The claim of the final group, No. 17, is as follows:

"17. A machine for making wirebound box-blanks having reinforcing cleats, comprising guides for directing the binding wires onto the blank, stapling devices for inserting staples to fasten the binding wires and cleats to the blank material, feed mechanism for advancing the blank materials step-by-step, guides for the cleats adapted to hold the cleats end to end in a plurality of parallel rows, and blocks interposed between the ends of the cleats in each row, said blocks adapted to keep the ends of the cleats properly separated while the materials are being advanced by the feed mechanism."

This claim is also directed rather broadly to the alleged combination of the workholder of patent No. 1,128,144 with the stapling machine of patent No. 1,128,145. It differs in scope from those previously discussed in that it includes as an element the "guides for directing the binding wires on to the blank," this language having reference to the grooved wheels 52 shown in Fig. 1, which guide the binding

wires from the reels 51 into place on the blanks. It does not describe defendant's structure for the reason that defendant does not have the final element of the "blocks interposed between the ends of the cleats in each row, said blocks being adapted to keep the ends of the cleats properly separated while the materials are being advanced by the feed mechanism," this language evidently describing the blocks 56 of the workholder as numbered in patent No. 1,128,145, or the blocks 6, 7 of patent No. 1,128,144, where they are better shown. In the structure of the patents in suit, these blocks are

"adapted to keep the ends of the cleats properly separated while the materials are being advanced by the feed mechanism."

[fol. 247] as they act directly for that purpose. There are no such blocks in defendant's machine, as while the cleat-pushing projections D shown in Fig. 1 of "Plaintiffs' Exhibit Drawings of Defendant's Machine" do engage the rear ends of the cleats and push them forward to their work, said pushers are not "adapted to keep the ends of the cleats properly separated," etc., since that effect results, as in Rosback, from the friction of the cleat on the piece I and the sides of the angle iron H which constitute the guides for the cleats. Accordingly, defendant's structure does not contain the aggregation of elements defined by this claim.

In general, in concluding the consideration of the claims of this machine patent No. 1,128,145, they define an aggregation, rather than a true combination, of the workholder of the Inwood & Lavenberg patent No. 1,128,144 with the old stapling machine of the patent No. 1,128,145; they are vague and indefinite, and they are functional, and consequently descriptive of the method of making the box of the Inwood & Lavenberg reissue patent No. 12,725, rather than directed to the mechanism itself. Furthermore, such of the claims as in their terms describe defendant's structure define nothing substantially different from the prior art structures, such as that of the Rosback patent No. 614,348, if said claims be construed broadly enough to cover the radically different structure employed by defendant, which follows the teachings of said Rosback patent rather than those of the Inwood & Lavenberg patents in suit.

Comparison of Machines of Patents Nos. 1,128,144 and 1,128,145 With Defendant's Machine and With the Prior Art Machines.

Workholders or work-carrying means in this general class are always constructed and shaped and formed to fit the article to be made. Portable workholders, for example, having that characteristic are shown in the prior patents to Maltby, No. 666,872, granted January 29, 1901, and to Fuller, No. 690,416, granted January 17, 1902, already described, and in these patents the different elements of the blank to be made are held against relative displacement by lugs and projections placed at points where they are needed for this purpose. In these patents, should the portable workholders or formers or carriages therein shown be used for the making of a different article, the pins or lugs or projections would then be arranged in an ob- [fol. 248] vious manner in accordance with the product to be made thereon. It would seem obvious that the portable workholders or formers or carriages of the Fuller patent, as well as the one shown in Maltby, could be modified by a rearrangement of the positioning means thereon to make wirebound box-blanks like any of those under discussion. The Fuller portable workholders have wheels, and are fed through the machine by gravity, but it would be easy to hitch them to belts or some other propelling means or work-feeding means, and in the Fuller patent it is stated (lines 12-40, p. 1):

"My invention relates to improvements in means for conveying and holding materials to be operated upon by means of various machines, and more particularly to nailing-machines, stapling-machines, and machines of like nature which are adapted to the manufacture of baskets, boxes, and like structures.

"The object of my invention is to provide greater facilities for handling, assembling, and holding the material to be operated upon, whereby a number of operators may work in conjunction with a single machine, thereby greatly increasing the capacity of the same. In operating such machines in the usual way by single operators considerable time intervenes between the strokes of the machine, during which time the operator is assembling and disposing of the work.

"My invention consists, essentially, in providing improved means for moving and holding cars having holding means in which to assemble and nail the materials, consisting of tracks or ways for the cars, together with automatically-operated pawls, stops, switches, and other devices, whereby the cars are moved or held so that a number of operators may work in conjunction with a single machine, and thus greatly increase the output from the same."

In the patent to Cronin, No. 102,232, granted April 26, 1870, a work-supporting carriage is shown for the nailing machine, and this carriage is automatically moved below the nailing mechanism, in a step-by-step or intermittent manner, by the rack and pawl of a ratchet-like device. If there is anything to be gained by using a plurality of work-holders or carriages in the manufacture of wire-bound box blanks, or blanks of any other character, it was not Inwood and Lavenberg that first made that contribution to the art, for Fuller himself, as well as others, previously explained all this in their patents.

[fol. 249] Moreover, the Fuller patent, No. 694,467, granted March 4, 1902 (the same patentee previously mentioned), shows an arrangement which involves an endless series of workholders or carriages supported on an endless-link belt and given intermittent motion "to carry the apron forward at each movement a suitable distance to successively bring each ba-ket-top or other article under the member B," and he has previously explained that the member B is "the nailing member or other operating member of the machine adapted to nail or otherwise operate upon the stock," and it is plain that staplers could be used for this purpose. By feeding binding wires to the staplers of a machine like the machine of this Fuller patent by any of the known devices for so doing at that time, and by slight rearrangement of the positioning means on the endless traveling work-carrier, wirebound box blanks, such as any of those under discussion, could easily be made.

The idea of holding successive sections of the same box blank in their proper relative positions during a stapling or nailing operation was old and was not new with Inwood and Lavenberg. In the Greenstreet patent No. 579,574 there is a full discourse of the idea of making a foldable wirebound box blank (for either a crate or a tight box, see lines 30-39, page 3 of the specification) by relatively

positioning the successive sections of the blank and carrying them forward under the staplers which put on the wires to flexibly connect the sections together. It was not new with Inwood and Lavenberg to produce a flexible wire-bound and cleat-reinforced blank as the immediate result of the stapling operation, for it is obvious that the Healy box blank (patent No. 768,123) must have been made in the same way, and while the metal straps in this blank are nailed instead of stapled, that does not alter the fact that the immediate result of the fastening operation by which the metal strips and sheets and cleats were secured together is a flexible foldable blank.

That idea was also old in the Howenstine patent No. 453,479, for there the obvious method of making the blank is by wiring the separately formed sheets and cleats together in the manner shown—whether it was done by hand or by machinery makes no difference, so far as the idea of flexibly uniting the separate sheets and previously formed cleats by wires or rods or strips of metal is concerned. In the Hamilton patent No. 373,828, the blank is obviously made by providing separately formed sheets and cleats and by then securing them together by wires and nails, so that this blank is flexible immediately upon being finished [fol. 250] and does not have to be cut or sawed like the Rosback blank. The Walker blanks (patents Nos. 763,579 and 767,613, filed October 20 and November 18, 1903) are obviously made by forming the cleats and sheets separately and then stapling them together, using wide staples to flexibly connect the cleats end to end, and to serve as hinges (in place of long binding wires) between the sections of the blank. (See lines 5 to 17, page 2 of No. 767,613.) The general procedure followed in the Inwood and Lavenberg patents is old, therefore, and the only difference is in the minutiae of the structure of the blank or product itself, and even that is very slight, as previously explained.

Now the Inwood & Lavenberg patent No. 1,128,145 does not show the clamp for holding the sheets down on the cleats. This patent shows the adjustable connection between the two parallel sides of the workholder or former, whereby blanks of different widths can be made. With fixed guides like those used in the Brown patent No. 1,276,484, the workholder must be of fixed width, and such is the case with the Brown workholder. In the Inwood &

Lavenberg machine the staplers are laterally adjustable for blanks of different widths, which indicates that these joint applicants went into the Patent Office on the theory that the main object of their invention was to dispense with the guides which they disclaimed and which defendant is now using. The Rosback cleat pushers or wings (patent No. 614,348) are not adjustable, but they obviously could be, and it has been very common in belt conveyers to make the flights or pushers thereon adjustable to change the distance between them. This is shown in the patents to Snell, No. 625,213, and Hahn, No. 715,371, and in the Jonas patent, No. 538,021, the specification says:

"The detachable wings of the feed chain are also readily adjusted in accordance with the size of the blanks." (Lines 54-56, p. 2.)

This is a machine for stapling "pamphlets and other blanks," and the pushers on the feed belt are adjustable for the same reason that defendant's pushers are adjustable, namely, "to suit the length of the blanks." Claim 1 of this Jonas patent reads:

"The combination with a stitching table and a wire stitching or stapling mechanism, of an intermittently moving feed chain or belt arranged along the stitching table and provided with feeding wings which are adjustable lengthwise of the feed chain or belt, whereby the distance [fol. 251] between the wings can be increased or reduced to correspond with the size of the blanks or pamphlets, substantially as set forth."

This claim exactly describes defendant's feeding and assembling means, for defendant has two feed belts like the Jonas belt, with a guide or "stitching table" for each belt. Defendant has means for holding the sheets down on the cleats; but this is shown in the Rosback patents, and is very common in stapling machinery for work of this class.

In determining whether any of the claims of the Inwood & Lavenberg patents (the two machine patents) are descriptive of defendant's machine, it is important that the significance of each claim be clearly understood. In patent No. 1,128,144, claim 6 specifies means for receiving a plurality of cleats "substantially end to end," and

follows this with the inclusion in the claim (as the final element of the combination) of "cleat-spacing means relatively adjustable to suit individual cleats of different lengths to be received in said positioning means," and this is a feature not found in defendant's machine. Defendant has lugs or pushers on the link belts, adjustable thereon for the same reason that the lugs of the machine of the Jonas patent No. 538,621 are adjustable on their link belts. In the Fuller patent No. 634,467, the curved cleats K are shown as positioned end to end by the spacers N and M, and the latter could easily be adjustable, obviously, for cleats of different lengths. The expression "end to end" can only mean exactly what the patent shows and describes, which is that the cleats in each row are arranged with their ends close together so that they will engage each other when the blank is folded. The only means shown for effecting such a result are the spacing blocks 7 of the patent, which are located between the "adjacent ends of the cleats" in order to correctly position these ends for mutual engagement when the blank is folded. The expression "end to end" must of necessity mean this, if it means anything, for it cannot be regarded as meaning merely that the cleats in each row are in line with each other, and in defendant's blanks as made on defendant's machine the cleats in each row are widely separated and never engage each other even after the blank is folded. The claim correctly describes the spacer block and full-cleated blank method of the patent in suit, where cleats which are ultimately to engage each other in the box are arranged end to end in the blank, but the claim is not at all a correct description of the guides and cleat pushers employed in defendant's machine.

[fol. 252] In the Rosback patent No. 614,348 there is a succession of cleats in each guide, as successive blanks pass through the machine, but the successive cleats are not end to end in any accurate sense, any more than they are in defendant's machine. In the Rosback machine the cleats are aligned transversely thereof, of course, so that the ends of the cleats in one guide are exactly opposite the ends of the cleats in the other guide.

Claims 37, 38, 39 and 40 of this patent in suit contain the same mechanical limitations, and are not descriptive of defendant's machine.

If claim 26 is descriptive of Cefendant's machine, it is then equally descriptive of the Rosback machine of patent No. 625,958. Claim 26 contains nothing in the way of means for wiring the sheets and cleats together, of course, inasmuch as nothing of this kind is shown or described in the patent. In the Fuller patent No. 694,467 the method of use of the apparatus shown and described involves a succession of end pieces K corresponding to the cleats, a very long succession of end pieces or cleats, in two parallel rows, and means are provided to position the sheets J (these sheets are "side material," as they form the top side of the basket cover) on said cleats. This Fuller patent does not show anything bearing down on the sheets to hold them "in a proper plane relative to the cleats," but it is obvious that the guards ordinarily employed for this purpose, such as those shown in the Rosback patents, can be added to the Fuller machine if such is necessary or desirable.

It may be remarked that these claims all rely more on the box blank or product itself, in the effort made to define the invention, than upon the workholder or upon the "COMBINED CARRIER AND FORMER" which is stated to be the subject-matter of the patent. In fact, the claims in question seem to describe more function or method and much more of the construction of the product than they do the apparatus upon which the product is supposed to be made. The claims are couched in terms of method to a large extent, and merely recite the method of procedure necessarily followed in making the box blank of the Howenstine patent No. 453,479, or the box blank of the Healy patent No. 768,123, or the box blank of the Walker patents Nos. 763,579 and 767,613, previously mentioned. This is necessarily the procedure to be followed in making these blanks, and this is especially true when tongue and groove cleats are used, for with tongue and groove joints the cleats are necessarily formed separately in the desired manner before they are attached to the sheets. In Howen- [fol. 253] stine, for example, the side sections "*a*" of the blank, in the making thereof, are necessarily spaced apart "a distance appropriate to dimensions of a desired intervening box side," as specified in claims 39 and 40, for the intervening side (the bottom side "*b*" of the blank) is interposed between, and the plank would not fold properly

if the side sections "*a*" were not thus spaced in the exact manner specified by the language of the claims. All this means, in plain language, is that the alternate sections of the blank are spaced apart by the intermediate sections of the blank, in accordance with the dimensions desired for the intended box. Any machine for making the Howenstine box blank would necessarily do that, and the same is true of Healy, and true of Walker, all of which antedate the patent in suit.

Claims 39 and 40 are somewhat misleading, but examination of the file-wrapper and contents of this patent shows that these claims are not intended to cover the making of a blank with every other section omitted, as might be understood from the mere wording of the claims themselves, for the patent does not show this, of course, and in the prosecution of the application the controversy between the Examiner and the attorney shows that the claims are not intended to have that meaning, but simply that one section is spaced from a non-adjacent section a distance equal to the intervening section, approximately, or in accordance with the space required for the intervening section, so that the blank when folded will produce a box of the desired size and shape. As stated, it was not new with Inwood and Lavenberg to space cleats far enough apart endwise to permit the presence of intermediate cleats to form an intervening section or "box side" as specified in the claims under consideration. Of course, this exact method of procedure is also found in the Inwood & Lavenberg reissue No. 12,725, as this same procedure is here described in order to differentiate from the disclaimer of this patent.

Defendant does not use the spacer-block method described and shown in the patents in suit; does not use the tight-sheet (edge-to-edge) method described in the patent in suit; does not use the full-cleated blank method described in the patents in suit; does not use the means for holding cleats end to end described in the patents in suit; does not use anything for assembling and clamping the cleats and sheets all together in stationary position, in complete blank form, before feeding the blank under the staplers. The device of the Inwood & Lavenberg patents is a portable frame which can be loaded with the

[fol. 254] cleats and sheets, and which can then be turned upside down or carried in any position from a work bench to the stapling machine. That method necessarily requires the use of spacing blocks to keep the cleats from moving endwise in either direction, for in the patents in suit the cleats are moved along without friction, being carried by the workholder, and this is also true of the sheets.

In defendant's machine the cleats and sheets are subject to a retarding friction by reason of their engagement with stationary guiding means, and there are no spacers or spacing blocks used or required between the cleats. In the patents in suit the spacer blocks 7 are shaped like wedges to predetermine the exact size and form of the space between the cleats arranged end to end, and these blocks are spacers in the true sense of the word, for each block keeps one cleat from sliding forward against the other, and keeps another cleat from sliding backward against the other not only while the carriage or former is being loaded, but also while the carriage or former is being held or carried around and while it is being sent through the stapling machine. In defendant's machine the cleat pushers, similar to those used in the old Rosback machine of patent No. 614,348, are compelled to function as pushers before the sheets and wires are stapled to the cleats. In the Inwood & Lavenberg machine, as described and shown by the patents in suit, each spacer block 7, or 56 of the other patent, performs no function whatever as a pusher until after the cleat in front of the block is stapled enough so that the binding wire begins to pull the cleat back against the block. Therefore, in the patents in suit, these spacer blocks are primarily positioning means to positively position the cleats end to end, and are only secondarily pushers, and they would not act as pushers if the binding wires were left off. On the contrary, in defendant's machine the spurs or lugs or projections or wings or flights on the two endless conveyor belts, which engage the rear ends of the cleats, are primarily pushers, act solely as such at all points in the operation of assembling the materials for making the blank, and would function as pushers even though no binding wires were secured to the blank, for each flight must propel its allotted cleat along the stationary guides in which the cleats

slide with considerable retarding friction to maintain them in their proper relative positions.

In the Rosback patent No. 608,796 it is stated that "The projections H" of the respective claims are exactly parallel with each other, so that they travel abreast." In a simi- [fol. 255] lar manner the flights on defendant's endless belt conveyors or chains "travel abreast." Suppose, for example, in defendant's machine the guides were not stationary and were made to travel with the belt conveyors. In such case there would be nothing to hold the cleats back against their respective pushers, and the cleats could be jolted or jarred out of place and could slide forward away from their allotted pushers. Instead of that, the cleats are placed in the stationary guides, and the pushers then come along and hit the rear ends of the cleats, and the friction between the cleats and the guides holds the cleats with their rear ends against the pushers, exactly as the cleats in the Rosback machines are held back by friction in their guides and do not move forward until the cleat pushers engage the rear ends of the cleats. Of course, in defendant's machine, as in the Rosback machines, the attendant or person who feeds materials into the machine can be very careful to place the rear ends of the cleats against their respective pushers, but such precision is not necessary, for if the cleats are laid in the guides in a careless manner, so that they are not in proper relation, the cleat pushers will then come along and strike the rear ends of the cleats and push them forward in proper relation.

In the Inwood & Lavenberg machine, as shown in the patents in suit, absolute precision and exactness is required in the manual placing of the materials in the former or portable workholder or traveling carriage, for each cleat must be placed in a certain position, and must be held absolutely against displacement in any direction, either forward or backward. The device of the patents in suit is a "carriage" in the real and common or ordinary sense of the word, for it sustains the entire weight of the cleat sand sheets, and acts as a conveyance to carry the entire weight of the blank, and there is no friction between the blank and any stationary element. In defendant's machine the weight of the cleats is sustained by the

on the cleats, and the two endless belt conveyors merely communicate motion for propelling the materials in the direction of the staplers.

In the patents in suit, the assembling carriage or portable workholder is a "former" in the true or common sense of the word, inasmuch as it arbitrarily determines the formation of the blank, and serves like a mold into which to introduce the materials. The materials are held in correct formation even while the carriage or workholder is stationary, and only cleats of exact predetermined length can be fitted into the compartment between [fol. 256] the wedge-shaped spacing blocks, so that the "end to end" formation of the cleats is arbitrarily determined. In defendant's machine, the front ends of the cleats engage nothing of any kind whatever, but are on the contrary as far behind the pusher ahead, and farther, than the length of the cleat itself, and all gauging or positioning is done at the rear end of the cleats, exactly as is done in the Rosback patents.

In the Inwood & Lavenberg patents in suit, it would seem to be obvious that the cleats must be cut to exact length, substantially, so that both ends of each cleat will engage spacing blocks, for otherwise, and with cleats cut to short, the cleats in one row might not be abreast of those in another row. Also, if the cleats are shorter than the compartments formed between the spacing blocks of the portable workholder of the patents in suit, there would be nothing to insure the proper relation between the ends of the cleats and the edges of the sheets, for the spacing blocks (7 or 56) of these two patents in suit do not function as pushers and do not exert any pressure against the rear ends of the cleats until after the binding wires are stapled to the cleats, and it would then be too late to rectify any forward displacement of the cleats. With defendant's construction, any inaccuracy in the placing of the cleats in the guides is immediately rectified by the action of the cleat pushers long before the wires are stapled to the sheets and cleats, and while the cleats and sheets are still capable of relative displacement to permit them to experience such correction of their positions as is needed before they are stapled together.

In the patent in suit the cleats and sheet never have any retarding friction whatever at any point in the path

of their travel, so that great exactness must be observed in the initial assembling of the cleats in position, for should they be displaced relatively they would never recover their proper positions, as there is no friction whatever to oppose the propelling force before the wires are attached, and the back pull of the binding wires is only communicated first to the front section of the blank, and then to the other sections successively, whereas in defendant's machine the friction between the cleats and the guides maintains a rearward pressure on all the cleats simultaneously in opposition to the propelling force long before the wires begin to be stapled to the front end portion of the blank. Hence, as explained, the device of the patents in suit must not only act as a "carriage" to support and carry the materials forward, but it must also act as a "former" to accurately and arbitrarily position the [fol. 257] cleats and sheets during the assembling thereof in stationary position, and to maintain them in this position while the portable workholder is carried around or manipulated by hand and finally brought to the means for applying the binding wires.

The portable workholder of the patents in suit could be used for the making of blanks by hand, as by inserting the side materials in the workholder, stringing the binding wires and then driving the staples with a hammer, as the cleats are each engaged at both ends thereof and held positively in "end to end" relation and against displacement in either direction. Defendant's workfeeding and assembling means are essentially dependent upon forward movement, and could not be satisfactorily used as a stationary affair upon which to make the blanks by hand, inasmuch as under such circumstances there is nothing to insure absolutely the correct or required positions for the cleats relatively to the sheets, and the person endeavoring to do this sort of thing would have to shove the cleats back against their respective pushers (the pushers being stationary) and would have to keep the cleats in these positions by hand, or by some other means not shown, in order to prevent their forward displacement during the hammering and pounding necessary for the insertion of the staples manually in this rather

primitive manner. However, in defendant's machine, when in operation in the regular way, the friction between the cleats and the guides will hold a displaced cleat stationary until its rear end is engaged by its allotted pusher, and friction then maintains the cleats in proper relative positions. In defendant's machine the successive cleats in each guide are widely spaced apart, of course, but not by interposed spacers in the sense in which such spacers are employed in the patents in suit, but on the contrary, are maintained in this spaced relation by friction and by the same principle and action involved in the spacing of the blanks apart in the Jonas patent No. 538,021. In this patent to Jonas it is the friction between the blank materials and the guide on which they slide that serves to keep them in proper engagement at their rear ends with the adjustable pushers or flights on the endless chain conveyor and in this patent the spacing is necessary to insure proper co-operation between the blank feeding means and the stapling or stitching means.

In patent No. 1,128,145, claims 25, 46, 56, 57, 58 and 61 to 66, inclusive, seem to be more descriptive of the product and the method or procedure in making it than of the ap- [fol. 258] paratus upon which the product is made. In fact, the only difference between these claims and the claims of patent No. 1,128,144 is that they include the work-holding means aggregated with staplers of that particular character which have binding-wire guides to feed binding wires into position to be stapled to the materials. These claims also include the feeding means for propelling the portable workholder. The claims in question all recite the method of procedure presumably involved in the making of the Howenstine, No. 453,479, box blank, or the Healy, No. 768,123, box blank previously mentioned. For example, the Healy box blank was presumably made by the exact method described in claim 25, for it is obvious that to make the box most quickly the cleats of this Healy patent would be arranged end to end, during the making of the blank, that the sheets would be placed thereon in proper relation thereto, and that the metal strips would be applied as "binding means across the intervals between said spaced cleats to secure them together in their spaced relation to form a foldable blank," exactly as specified in the claim.

This modus operandi is obviously susceptible of practice on the Rosback machines, either by duplicating Rosback's cleat pushers for additional cleats, or by first slightly tacking the sheets to the cleats so that pushers will only be necessary at the extreme rear end of the blank. In the Greenstreet patents the binding wires extend across the intervals between the successive sections of the blanks, and in Greenstreet No. 652,357 the patent says that the machine disclose therein involves "means for feeding into the machine longitudinal or under cleats at right angles to the main slats, means for feeding said longitudinal cleats, means for varying the spaces between said slats." This cleat-feeding mechanism is described in lines 7-47, page 3 of the Greenstreet specification. It is plain that Greenstreet in addition to properly spacing the slats for the sides of the box proposes also to keep the slats or sheets in place by means of underlying cleats. In defendant's machine, the endless feed belts or chain conveyors have, as previously explained, pushers like those of the Rosback patents, and do not have spacing means to engage between the ends of adjacent cleats. In defendant's machine a cleatless sheet is stapled, as in the Greenstreet patent No. 579,574, by clinching the staples on the under surface of the cleatless sheet, then a cleated sheet is stapled by inserting the staples through the sheet and into the cleats, just as in Rosback, so that cleatless [fol 259] sheets alternate with the cleated sheets. In Rosback 614,348 it is stated that (lines 8-14, p. 7):

"In the event that it is desired to form blanks with the sheets and strengthening-strips without the reinforcing-cleats it will only be necessary to raise the guide-bars $B^1$ and provide a clencher like the clencher $s^1$ beneath each of the tacking devices employed."

Defendant's machine not only uses the cleat pushers of this Rosback patent No. 614,348 in presenting the cleated sheets below the staplers, but also uses this suggested cleatless feature of the Rosback machine to present the cleatless sheets to the stapling mechanism. This Rosback patent uses the expression "strengthening-strips" as meaning either wires or flat strips of sheet metal, so that it is plain that this patent contemplates the making of wire-

bound cleated blanks, and the making of wirebound cleatless blanks, or both, as occasion may require, and defendant makes a semi-cleatless or semi-cleated blank by means of work-feeding and guiding means which are like those of the Rosback patent. Defendant interposes anvils under the cleatless sheets of the blank to clinch the staples on the under surface thereof, but these anvils are not carried by the endless belt conveyors and merely move under the cleatless sheets to clinch the staples.

In claim 46 the language appears to be descriptive of the machine shown in the Rosback patents Nos. 608,796 and 614,348. Both of these patents show and describe "preliminary feed mechanism" for advancing the front end of the blank into starting position below the staplers, assuming that this is what is intended by the final clause of the claim. The Rosback patent No. 614,348 says (lines 41-44, p. 3):

"When the blank material has been advanced to the tacking devices, the preliminary feed mechanism is stopped, as hereinafter described."

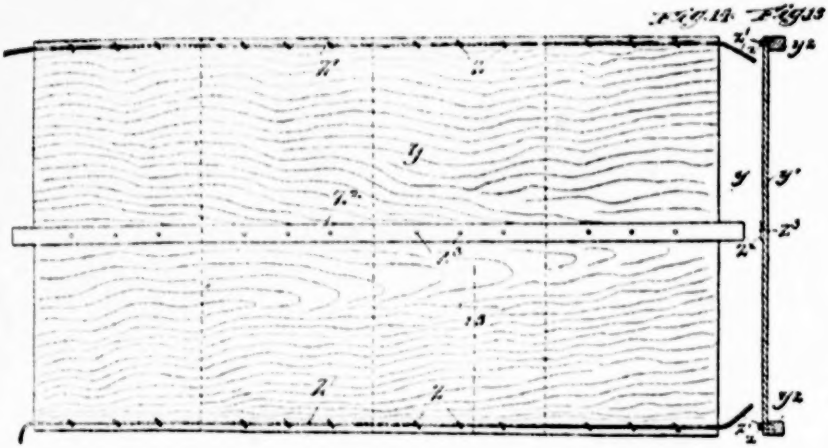
Farther on this same patent says (lines 80-89, p. 4):

"When the first staples have been driven over the strengthening-wires to fasten them to the box blank, the strengthening-wires will be drawn along by movement of the blanks. When a box is formed from a blank, the ends are fastened together by twisting or otherwise fastening together the ends of the strengthening-wires, which are [fol. 269] caused to project beyond the ends of the blank for that purpose, as indicated in Fig. 14."

At this point I insert a copy of said Fig. 14 of this Rosback patent.

From this it will be seen that three staples are driven in each of the four sections of the blank (the transverse dotted lines indicate the predetermined dividing lines between the contemplated sections of the blank) so that the first staples are necessarily driven "in the desired relation to an edge of said section," and ends of the wire

are formed for twisting together to close the box. The correct stapling of the blank is exactly the same whether



the sections thereof are physically separated before or after the stapling operation, for as Rosback shows it is important to have the staples driven in the different sections of the blank, and not on the dividing lines between the sections. Defendant's machine does this, just as the Rosback machine does, so that feeding motion of the work is necessarily in step with or in proper relation to the reciprocation of the staplers. However, defendant uses automatic staple control in the nature of "skipping mechanism" of special construction, in order to prevent the driving of staples between blanks and prevent the driving of staples in the spaces between the different sheets of the blank.

In the application of patent No. 1,128,145, as originally filed and sworn to, Inwood and Lavenberg describe the lever 44 of this patent as a device whereby "a preliminary feed" is imparted to the workholder carrying the blank, [fol. 261] and in describing the use of this so-called "preliminary feed" they (in the original application) finally stated "thus the use of an automatic skipping mechanism is obviated," and there is nothing in defendant's machine which either could or does obviate the use of the "skipping mechanism" employed therein to insure correct insertion of the staples in the sheets and cleats of the blanks. In Rosback No. 614,348 it is stated that (lines 34-41, p. 6):

"In the present machine the skipping is produced by withholding the driving of nails or staples at proper stated intervals, this withholding being produced by preventing the feed of staple-wire or nails to the taking devices."

Defendant employs this same general method of "skipping," as no staple-wire is fed to the staplers while the spaces between blanks are passing below the staplers, and in addition no staples are driven while the spaces between the separate sheets of the same blank are passing below the staplers. The term "skipping" means, as is well known in this art, the prevention of the driving of staples in the intervals between blanks, or in the intervals or spaces between the sections of the same blank, and in the Inwood & Lavenberg patent under discussion, it is plain that the hand lever 44 for producing "preliminary feed" of each blank to the staplers serves, as those applicants stated, to obviate "the use of an automatic skipping mechanism" inasmuch as the staplers can be stopped and may be prevented from running during the intervals between successive blanks, so that "skipping" will be insured to prevent the driving of any staples while the "preliminary feed" arrangement is being employed to advance the front end of the blank to the staplers before the latter are started.

Claim 46, therefore, is not descriptive of defendant's machine, for while the language of the claim is rather ambiguous and uncertain, it would seem to relate to the arrangement whereby "the use of an automatic skipping mechanism is obviated," and defendant's machine contains nothing which obviates the use of skipping mechanism, and on the contrary, and inasmuch as the machine runs continuously without stopping it after each blank, there must of necessity be skipping mechanism to prevent the driving of staples between blanks. Defendant's machine has a hand lever for manually actuating the ratchet feed of the link belts or chain conveyors, as such manual actuation is neces- [fol. 262] sary and desirable at times, as in shortening or lengthening the link belts for blanks of different lengths, or for other reasons, but not to obviate the necessity of using a skipping mechanism, for on the contrary in defendant's machine a skipping arrangement is in fact employed and must be used.

In claims 56, 57, 61, 62, 63, 64, 65 and 66 great stress is laid on the "end to end" method of assembling the cleats, and each claim recites functionally any arrangement for practicing that method, or for following this procedure, and it has been clearly pointed out that defendant employs neither a method nor a machine designed to position cleats "end to end" in the manner shown and described in these Inwood and Lavenberg patents.

The last clause of claims 61, 62, 63, 64, 65 and 66 is not clear, for any one of these expressions, such as the expression "and means foldably to connect said members," if taken literally would mean the binding wires. As these claims are in a patent purporting to describe a machine, and not the product, it is assumed that the language in these claims, inaccurate and misleading as it may appear, must be taken as something intended to describe not the means for thus flexibly or foldably connecting sections of the blank together, but merely the instrumentalities (the staplers) by which the flexible connections are secured to the blank.

Claim 58 is also ambiguous in the last portion thereof, as it is not clear what the patent shows which can be called "means for producing lengths of unattached wire beyond the ends of rear cleats for a blank preparatory to securing binding wires to the next following blank." In the first place this patent shows no means whatever for cutting the binding wires to produce projecting ends of the wire at the rear end of the blank. This is presumably done by hand, and whether there will be any "lengths of unattached wire beyond the ends of rear cleats for a blank" depends upon whether the man with the shears or hand-cutters is expert enough or careful enough to cut the wires at the right points, or at the requisite distance behind the rear end of the blank. If this language merely means that the two toothed rollers 38 of this patent are so located that the workholder will pass under the staplers and travel a distance beyond before stopping, thus leaving the binding wires trailing behind before they are cut off, then this feature is old, as the same thing occurs in the Rosback patents Nos. 608,796 and 614,348, or in the Knudtson & Uhri patent No. 18,038, or in any of the [fol. 263] patents for making wirebound box-blanks, for as previously pointed out Rosback shows the blank with projecting ends of binding wire at both ends of the blank, and uses automatic wire cutters to so cut it.

In defendant's machine the front end of each blank follows in fixed relation behind the rear end of the blank ahead, and automatic means are employed to sever the wires between the blanks, while the blanks are moving toward the end of the machine from which they are discharged, and without stopping the continuous running of the machine. In the patent in suit, No. 1,128,145, the workholder containing the blank passes under the staplers and stops, and the attendant must then hurry up and cut the wires and move the workholder and the blank therein out of the way, so that the next workholder may be sent through in the same manner, but there is nothing to insure any uniform spacing between blanks, or nothing to insure uniform intervals between blanks, as one blank may follow the one ahead very closely, or at a considerable interval of time afterward, for as previously pointed out, the language of the patent itself, and of the original application as filed, makes it entirely doubtful whether one workholder may follow the one ahead without stopping the machine. Should that be attempted, the staplers would go on pounding and making staples to no purpose whatever, between blanks, and if one workholder should be shoved against the one ahead while the rear end of the first workholder is just disappearing under the staplers, there will then be insufficient spacing between the blanks to provide ends for the wires of the desired or necessary length.

As previously pointed out, the only thing in this patent which can be relied upon to show that the machine is intended to run continuously without stopping the machine after the making of each blank, is the insertion which was made in the specification by amendment, and which not only is not supported by the language of the original application as filed, but is also apparently contradictory thereof. If the machine is to be run continuously, or in practice is capable of anything of that kind, it is for reasons which do not appear in the patent itself, or which are at least too obscure to be apparent on the face of the patent. In defendant's machine, however, the blanks follow one another in rapid succession, in predetermined spaced relation to each other, hour after hour, without stopping the machine. The wires are cut automatically between the blanks, thus insuring uniform lengths for the projecting wire ends at opposite ends of each blank. Also, the staplers

[fol. 264] are so automatically controlled that "skipping" is produced to prevent the formation of any staples in the spaces or intervals between the blanks, which "automatic skipping mechanism is the very thing disclaimed and sought to be avoided in the Inwood & Lavenberg application as originally filed.

In this Inwood & Lavenberg patent No. 1,128,145, it is stated that (lines 122-127, p. 3):

"In this way, an endless chain of sheet and cleat holders and positioners, with material thereon, may be caused to pass between the bed frame and stapling devices, and keep the machine working to its fullest capacity."

There is nothing of this kind shown in the patent, and nothing of that nature disclosed in the original application upon which this patent is based. Defendant's machine has "an endless chain," as it employs endless link-belt chain conveyors, but there is nothing that even approximates that sort of thing in the Inwood & Lavenberg patent and nothing which justifies any such misleading statement as this would appear to be in the patent in suit. In this patent sued on there is absolutely no way in which to keep a succession of blanks traveling all the time in fixed relation to each other below the staplers. There is nothing to keep even two blanks moving at the same speed and in predetermined relation to each other, as is the case with defendant's machine which uses the Rosback endless chain conveyors and cleat pushers (the latter in duplicate) to propel the cleats along the stationary guides which Inwood and Lavenberg disclaimed and repudiated when they filed their application.

In defendant's machine the hand lever is used for adjusting or pumping the chain conveyors forward, to correctly position the cleats on the chain conveyors when setting up the machine, or when the chains are lengthened or shortened for blanks of different lengths, but this lever is not used while the machine is running, or while making blanks, as with the automatic skipping devices on this machine the chain conveyors can run continuously and there is no necessity of stopping the staplers and of then pumping the chains ahead to prevent the driving of staples between blanks. This, however, is necessary in the patents

in suit, inasmuch as the Inwood & Lavenberg machine patent No. 1,128,145 shows nothing to prevent the driving of staples between blanks, should the machine be kept running continuously, and hence to prevent this undesirable lost motion and waste of staples and other objectionable effects [fol. 265] in the intervals between the blanks, the staplers must be stopped and the hand feed must be used to pump each blank forward before the staplers are started again. However, as previously explained, even this expedient of hand feeding as a substitute for automatic skipping to prevent driving of staples between blanks is a doubtful and dubious proposition at best, for no guides are shown in this patent (it will be recalled that Inwood and Lavenberg tried to get these guides into their application by amendment, in an effort to get the claims therefor away from Norman E. Brown in the interference with the latter), and without such guides it would be practically impossible to use the machine commercially for the making of wirebound box-blanks. But, notwithstanding this, the patent on its face, and the record of this application in the Patent Office shows that the Inwood and Lavenberg portable workholder machine shown in this patent in suit was intentionally a guideless affair, and was guideless in theory, as shown by the language of the original application.

I further note that in this patent, No. 1,128,145, the machine is equipped to staple a center wire to the blanks, as there are three staplers and three reels for wire. Also, for this purpose, there is a clincher 49 to clinch the staples in the middle row on the under side of the blank, and in order to permit this center stapling this clincher must move up and down in order to get out of the way of the "slotted cross-bars 57 of the carriages, or formers," so that the carriages may "pass without obstruction from the anvil," which latter is the said vertically reciprocating clincher 49 shown in Fig. 2 of the drawings of this patent and described in the specification thereof. It would appear that the machine must be stopped with this anvil 49 in its lowered position, so that the front end of the carriage or workholder may be pushed into position with its front cross-bar 57 a little past or beyond this anvil, before the machine is started. In other words, any attempt to run the carriages through continuously, without stopping the machine, would result in conflict between the anvil 49 and the cross-

bars 57, and it is to prevent this that the "preliminary feed" of the patent is employed to bring each carriage or workholder into proper position before starting the machine. Figs. 1, 2 and 3 of the patent show the center stapler and the center reel, and the vertically reciprocating anvil or clincher 49, but Fig. 4 of the patent does not show the center wire. In patent No. 1,128,144 the former or carriage not only has cross-bars at each end thereof, but also [fol. 266] one in the middle, and this further complicates the problem of getting the carriage or workholder past the reciprocating anvil 49 previously mentioned, for in order to clinch the staples on the bottom of the blank this anvil must rise above the plane of said cross-bars of the carriage or workholder. The preliminary hand feed of the machine of the patents in suit would seem to be necessary, therefore, in the operation or running of the machine, whereas in defendant's machine the hand-lever of the ratchet feed is not necessary for any such purpose.

With regard to the question of whether the arms 12 of patent No. 1,128,144 engage the end edges of the veneer to hold the latter against displacement longitudinally of the blank, I note that this is not only something which is neither shown nor described in the original application, but also something which at best would only be true with the longest blank made on the workholder or carriage. In this patent in suit, the spacer blocks are adjustable toward and away from each other, for blanks of different lengths, and when the blank is shortened the ends thereof will be a distance away from the arms 12, unless the blocks be so adjusted that the blank would be short only at one end of the carriage or former. There is nothing in either of these machine patents in suit to indicate how this adjustment of the spacing blocks is to be accomplished, for blanks of different lengths, and it is not explained just how this affects the problem of having the center clinching block skip the cross-bars 2 of the carriage or former, without striking these bars, and it would seem to be plain that each carriage or former must be adjusted into position by the preliminary feed mechanism.

In patent No. 1,128,144 the racks are on the bottom of the carriage or former, whereas in patent No. 1,128,145 the racks are on the sides of the carriage or former, and in No. 1,128,145 there is absolutely nothing to hold the sheets

of veneer against edgewise displacement. In No. 1,128,144 it would appear that the mere weight of the rod 14 is depended upon to hold the sheets of veneer down in place, and this arrangement would not be effective to hold the sheets in accurate position, and certainly not in spaced relation, as they must be in defendant's machine and in defendant's method.

[fol. 267] The Inwood & Lavenberg Method Patent No. 1,128,252.

After a careful study of this patent and the associated patents in suit, and the pertinent prior patents, I find that the claims of this alleged novel method do not in fact define any novel method, but only the application of an old and well known method to the manufacture of the supposedly novel box-blank shown in the expired Inwood & Lavenberg reissue patent in suit, No. 12,725.

The supposed method, briefly stated, is simply this:

(1) Preforming, in the sizes ultimately needed, the sheets and cleats for all four sides of the box, and assembling all of these parts in a plane, preparatory to presenting any of them to the stapler;

(2) Stapling onto the parts of the four sides thus assembled the necessary binding wires to secure said four sides together in their proper relative positions;

(3) Folding together the four sides thus connected into the shape of a box without heads; and

(4) Twisting the ends of the binding wires together to keep the sides in such folded position.

This was the method employed in the manufacture of boxes by use of the machines of the Greenstreet patent No. 652,357 and the Lipps & Springer patent No. 801,998, already considered.

Even assuming that there was novelty in the specific first step above quoted as disclosed in the Inwood & Lavenberg patent in suit No. 1,128,252, it is not practiced by defendant.

The process of manufacture as set out in the patent in suit may be briefly described as follows:

The eight cleats A with their step-mitered ends are placed in the bars 3 of the assembling carriage or workholder 1

resting on the raised portion 5, and with their step-mitered ends resting against the inclined sides of the spacing blocks 7. The four veneer side pieces B are then placed over the cleats with their edges meeting at 24, as seen in Fig. 5, over the center of the block 7. The veneer side pieces B thus positioned are held in place by swinging down the bail 14 into the position shown in Fig. 6. The work so far described constitutes the first step as above outlined.

While the next step might be carried out by hand, employing a hammer, a pair of binding wires, and the necessary staples, commercially it is necessary to employ a stapling machine of the general character shown in the Inwood [fol. 268] & Lavenberg patent No. 1,128,145, and the workholder or carriage with the parts assembled is then passed through the machine, which, if the workholder is guided through carefully by hand and held down against the action of the staplers, will place the binding wires C in line over the two rows of cleats, and will simultaneously with the placing of the wires drive the staples D through the edges of the veneer side pieces B into the cleats A. The ends of the two binding wires C extend beyond the ends of the bank thus formed, as indifferently shown in Fig. 6 of the patent drawings.

This passing of the blank in the workholder or carriage through the stapling machine constitutes the second step above noted.

The third step is carried out by swinging the bail 14 back to the position shown in Fig. 1, after which the blank is lifted out, and it is folded at the joints so that the step-mitered ends of the cleats A rest against each other, as shown in Fig. 2 of the reissue patent No. 12,725, although it must be understood that the heads shown in said figure are not present, as the alleged method as defined in this patent disregards the heads of the box completely.

The final step consists in twisting the ends of the wires together to hold the sides of the box in the folded position, in which position there is a substantial degree of rigidity due to the fact that all eight cleats A are employed, and their engaging ends produce a substantially rigid support for the thin veneer sides.

The process as practiced by defendant is substantially different in the first and third steps: Instead of assembling eight cleats with four side pieces in the stationary work-

holder, defendant assembles four cleats in the stationary guides while the pushers are advancing there-through, and on the leading pair of cleats one side of the box is placed in advance of the sheet pushers, while the second side is placed in advance of its sheet pushers, but without any cleats beneath it. The third side is placed in advance of its sheet pushers, overlying the pair of cleats at its ends, and the fourth side is placed in advance of its sheet pushers, but without any cleats beneath it. All the time the chain is pushing the assembled cleats and side pieces through the machine, and it is entirely possible to feed them in one side at a time so that the complete four sides are not assembled prior to their passage beneath the staplers. When the blank emerges from the stapling machine, it consists of the four side pieces, with the two binding wires, and the alternate side pieces having the cleats have staples straddling [fol. 269] the binding wire, extending through the edges of the veneer side pieces and into the cleats, while the alternate side pieces without the cleats have the staples straddling the binding wires, passing through the edges of the veneer side pieces and clinched on the under side.

The third step, folding together the four sides without the heads, is never practiced in defendant's process, as it would be utterly useless. Defendant, in fact, when the blanks are thus formed, piles them up in piles of a certain number, flat, without being folded, and wires the piles of blanks together and ships them to the customer, who ultimately assembles them with the heads, in the manner set out in the Craig patent No. 1,208,297. For customers near the factory, defendant sets up the boxes and delivers them set up, but they are not, and cannot be, used without the heads. If the blanks were folded together, as called for in step 3, without the heads, they would simply collapse and no useful effect would be produced.

Of course the user takes the heads and folds the blanks about them, with the tongues and grooves on the ends of the cleats secured to the heads engaging the tongues and grooves of the cleats on the blank, thus producing a comparatively rigid structure, which is finally fastened by the customary process of twisting the ends of the wires together, a process which has been employed in bailing hay for forty-five years to my knowledge, and which is shown in this wirebound box art in the prior Rosback patents.

On an analysis of the claims, I find that there are substantially two groups, of which Nos. 2, 4, 5, 6, 7 and 8 constitute one group directed to producing the box, while Nos. 9, 12, 13 and 17 constitute the other, directed to producing the blank, and not the complete box. I will quote claim 2, dividing *into* into so-called steps by reference letters, as follows:

"2. The method of making wirebound boxes having individual cleats and individual side pieces separated at the lateral corner edges of the completed box and connected by wires at said edges, which comprises

"(a) assembling previously formed individual cleats with the separate previously formed side material for an individual side to provide a side unit of the box;

"(b) assembling additional such side units to provide the other sides of the box;

"(c) securing to the cleats of each side unit a wire binding extending completely across said unit;

[fol. 270] "(d) connecting said side units by said wire binding, while leaving the latter laterally flexible to accommodate relative shifting of the separate meeting edges of the pieces of side material;

"(e) arranging said side units in box form; and

"(f) completing the continuity of the wire binding;

whereby relative longitudinal shifting of meeting edges of pieces of side material tends to bend the wirebinding out of normal alinement, and is resisted by the tensile strength of the wire."

It will be noted that the claim is framed in an apparent effort to distinguish from the Rosback method, where the cleats and side pieces are not individual in the blank, and where the side pieces are not completely separated at the lateral corner edges of the box, not only by the opening descriptive clause, but also by the statement in step (a) that the individual cleats are previously formed and that the side material is separate. Steps (a) and (b) are really all one step, rather than two distinctive steps, and I do not see how steps (c) and (d) as practiced by the defendant can

be divided in the manner set forth, as the result set out in both steps is due purely to the single step of passing the workholder through the stapling machine.

This claim might be criticised as for an incomplete method, inasmuch as no ends are fixed according to the method described, but for the fact that as the Inwood & Lavenberg box is constructed with the eight cleats having step-mitered ends and four side pieces, the structure without the ends has sufficient rigidity so that it can be used as a container for some classes of goods. This fact serves to show the radical difference between defendant's box and the box of the expired reissue patent in suit, as well as between the defendant's process and the process of the patent in suit. If defendant did nothing more than carry out the process defined in the claim, it would not produce a box having any utility, because with defendant's box and process the ends must be supplied before the structure has any utility whatever as a container. This difference is set out in the claim, as step 1 sets out that the side is formed of cleats and side material, and step 2 provides that additional such side units must be assembled to provide the other sides of the blank, i. e., it describes the construction of a full-cleated blank, and defendant's blank is not full cleated, because the cleats are omitted on every other side piece of de- [fol. 271] fendant's blank. Furthermore, the step (c) provides that the cleats "of each side unit" have the wire binding secured thereto, and, as before stated, the alternate sides of defendant's blank do not have any cleats, and the wire binding is secured, not to the cleats, as they are nonexistent, but to the side material.

The method set out in the claim is merely that of making the box of the Rosback patent No. 614,348 out of separate pieces rather than of a single side piece and two cleats.

If the specific method of assembling the side pieces and cleats set out in steps (a) and (b) employed by plaintiffs, i. e., assembling them in the manner described in the specific workholder, be ignored, then the claim is not substantially different from the method disclosed in the Greenstreet patent No. 652,357, as defendant assembles its side pieces more in the manner shown in the Greenstreet patent than in the manner shown in the patent in suit. The method defined in the claim is identical with that shown in the

Lipps & Springer patent No. 801,998, except for the omission of the cleats, which Lipps & Springer did not employ. There was nothing novel in the assembling of the eight previously formed individual cleats with the four separate previously formed side pieces, as called for in steps (a) and (b), in view of what is shown in the Howenstine patent No. 453,479, the Healy patent No. 768,123, and the Archer British patent No. 4793 of 1889. It is true that the Archer British patent does not bind the sides together with binding wires, but that method of binding sides of boxes together was old and well known prior to the alleged inventions of Inwood & Lavenberg, as shown in Rosback, Greenstreet, and Lipps & Springer patents.

I note the final functional clause:

"whereby relative longitudinal shifting of meeting edges of pieces of side material tends to bend the wirebinding out of normal alinement, and is resisted by the tensile strength of the wire":

and while this functional clause may serve to distinguish plaintiff's patented box from the prior art Rosback box, this distinction pertains to the box, and not to the method of making it. Moreover, this functional statement serves to distinguish defendant's box, and (if applicable to the method) defendant's method, from that of the patent in suit, inasmuch as, owing to the fact that defendant has the ends of the cleats secured together by tongues and grooves, instead of having merely the step-mitered joint of the [fol. 272] patent, any relative longitudinal shifting of the meeting edges of the pieces of side material is resisted by the cleats, and consequently no such longitudinal shifting of the meeting edges can occur to be resisted by the tensile strength of the wire unless the ends of the cleats have been broken, a condition which would not ordinarily arise.

Claim 4 differs from claim 2 in that it is broader in step (c), as it is not limited to securing the wire binding to the cleats, and it is theoretically narrower in the provision of "leaving said wire binding free from attachment to the side unit proximate the latter edges thereof," which merely means that the staples are not exactly at the edges of the

side pieces, so that they can have the "relative longitudinal shifting," etc., set out in the final functional clause of the claim. The remarks relative to claim 2 apply equally to this claim except that it does not contain the adjective "such" in step (b).

Claim 5 is the same as claim 4, except that it introduces an additional limitation—

"positioning the edges of the side units close enough together to tension the wires when said units are folded in box form."

In the Inwood and Lavenberg structure the edges of the side units are placed in contact, as shown in Fig. 5 of the method patent in suit, whereas in defendant's process the side units are separated by at least the thickness of the sheet pushers, sometimes more, so that if there is any tensioning of the wires when the units are folded in box form in defendant's box, said tensioning would be substantially less than that secured by the different method of the patent in suit.

Claim 6 differs from claim 4 in that it has an additional limitation, stated as follows:

"a cleat end being spaced from an extreme edge of the side material to leave an overlap margin on said side material to mate with a corresponding portion of another side unit";

and such limitation is also provided for the remaining sides. This has reference to the fact, as seen in Fig. 5 of the patent in suit, that the edges of the side pieces B of veneer extend beyond the ends of the cleats A, so that there is an overlapped margin, and these overlapped margins mate in the manner shown in Fig. 2 of the Inwood & Lavenberg reissue patent No. 12,725, and in the dotted-line position of one side shown in Fig. 3 of said patent. This [fol. 273] limitation serves to distinguish the alleged method of the patent in suit from that employed by defendant, since in defendant's method the ends of the cleats attached to the side pieces in the blank are flush with the edges of the side pieces so that the cleat end is not "spaced from an extreme edge of the side material to leave an over-

lapped margin on said side material to mate with a corresponding portion of another side unit."

Claim 7 is the same as claim 2, first considered, except for the express limitation of "leaving the said units otherwise wholly disconnected and separate," which is impliedly expressed in claim 2. All the comments relative to claim 2 apply equally to claim 7.

Claim 8 is the same as claim 2, except that in step (c) the securing of the side binding to the side unit is limited by prescribing that it shall be "fastened thereto frictionally by straddling fasteners," and the final functional clause is further limited by providing that the wire "is permitted a sufficient capacity to creep under its frictional fastenings to transmit the longitudinal strains along substantial lengths of wire." What is meant by this is that the binding wires are secured by staples, and under the method of the patent in suit, these staples are not driven tightly enough to prevent the wire from moving beneath the staples. This is not descriptive of defendant's method, as the wires are stapled down so firmly that they cannot move under the staples in any normal treatment to which the box would be subjected.

Of the second ground of claims, I will quote claim 9, as follows:

"9. A method of making box blanks which comprises:

(a) (b) "assembling a plurality of box sections in cooperative foldable relationship; and,

(c) (d) "foldably connecting said sections in said relationship by wires extending across the respective sections to substantial distances from the corner line and secured against substantial lateral displacement on the sections within said distances, and leaving said side sections otherwise substantially disconnected to permit relative longitudinal shifting of meeting edges of the said sections and bending of the wire to resist such shifting by its tensile strength."

This is a much broader statement of the alleged method than that found in the first group of claims, but the final functional clause is so vague and indefinite that I am not

[fol. 274] certain what is intended thereby. It seems to amount to a statement that the wires shall be stapled to the side pieces of the box so that there is no movement of the wires between the end staples of the wire on each side piece, but this is contradictory to the requirement of claim 8 just considered. The main feature set out seems to be that the edges of the sides shall be shiftable relatively to each other, a feature that is not found in defendant's boxes, as previously set out, due to the fact that the ends of the cleats are joined by tongues and grooves, instead of being step-mitered, as in the patent in suit.

Claims 12 and 13 are of substantially the same scope as claim 9, except that they provide that the box sections have "their edges close enough together to tension the wires and cause them to tend to cut into the edges of the sections when said sections are folded in box form,"

reference apparently being had to the showing in Fig. 4 of the Inwood & Lavenberg reissue patent No. 12,725, where it will be seen that with the edges of the veneer side sections necessarily assembled substantially in contact, as shown in Fig. 3, when the edges are folded together the wire is drawn so tightly as to be forced into the edges of one side piece as shown in dotted lines. I have pointed out that in manufacturing defendant's box, the side pieces are separated by at least the full thickness of the side pushers (if the sheets are cut narrower, the spacing is greater), with the result that they cannot be bound together so closely as shown, and not closely enough to secure the cutting of the wires into the edges of the sections, as called for by these claims.

Claim 17 is of the same general scope as claims 9, 12 and 13, but is more limited, and in that respect resembles the first group in that it provides for the side material and "box members to be secured to said side material," etc., reference being had to the cleats. In view of the absence of the cleats in the structures defined by claims 9, 12 and 13, these claims define methods that are not different from that of the Lipps & Springer patent No. 801,998, if they be construed broadly enough to cover defendant's method, since the blanks in defendant's machine are fed to the stapler

in the same manner as are the blanks in the Lipps & Springer machine. The method employed in the Greenstreet patent No. 652,357 is described by these claims, with [fol. 275] the exception of the tensioning effect, and would presumably be employed in producing the box of the Averill patent No. 661,481.

From the foregoing consideration, it appears that the claims of this method patent do not define any novel method, but merely an old method applied to the making of the specific box illustrated in the Inwood & Lavenberg expired reissue patent No. 12,725, and that if said claims could be construed broadly enough to describe defendant's substantially different method, then they are not distinguished from the methods of the prior art.

Inwood & Lavenberg Patent No. 1,128,252 an Alleged Division of Their Patent No. 1,128,144

This patent contains drawings which are practically duplicates of the drawings of patent 1,128,144, except that on sheet 2 of this later patent a blank space occurs at the bottom of the sheet where, as will hereinafter more fully appear, some new figure was attempted to be inserted but was apparently left out by accident or by mistake or otherwise. The two patents are so similar in appearance, that except for their titles there is practically no difference. The claims of the later patent purport to describe a method or process, but as previously pointed out the claims of said earlier patent all contain lengthy statements of the method or modus operandi so that the claims of the two patents very closely resemble each other. There are several things in the specification and claims of the later patent, however, which do not appear in the original or parent application of which this patent purports to be a division, as will hereinafter be pointed out.

A further similarity between the two patents is the subject-matter of the two applications as they were both originally filed, and as illustrating this it must be carefully noted that said divisional application, as originally filed and sworn to, contains the following preamble (page 2):

"This invention relates to a combined carriage and former for use in the manufacture of box blanks and more specially

to that class of box blanks wherein the cleat, sheet or boards and a stay or reinforcing wire are stapled together, and while the same may be used to assemble and hold the various parts comprising the box blanks to be operated upon or stapled by hand, the same is more especially adapted for use in connection with an automatic stapling machine, em- [fol. 276] bodying mechanisms for carrying the carriage through the machine, when brought into engagement with such mechanism, and disengaged therefrom when the operation of stapling is completed, thus allowing the use of a plurality of formers or carriages in connection with each stapling machine, and the assembling of the box materials and feeding of the carriages to the stapling machine in rapid order."

Farther on (lines 8-12, page 5), the original application, while describing the formation and construction of the blank, set out the following:

"and the intervening space required between the cleat ends to allow a perfect mesh is dependent upon the thickness of the sheets or boards forming the sides of the box, the greater the thickness of such sheets the greater the intervening space between the cleats must be."

Farther on, in an effort to show the value and advantage of the portable workholders, the original application set out the following (lines 18-22, page 6):

"It is obvious that several carriages may be used for feeding the blanks to a single stapling machine, thus expediting the slow method of feeding blanks to machines, where no portable or detachable carriages and formers are used."

Again, in discussing the prior art, the original specification of this so-called divisional application set out the following (line 6, p. 7, to line 17, p. 8):

"It has been the practice heretofore in the manufacture of wirebound boxes to assemble the cleats and sheets to be stapled in guides forming an integral part of the stapling machine, and mechanisms co-operating with the stapling machine to contact with and slide the cleats longitudinally

in their guides under the stapling devices, the guides remaining stationary. This practice, as before stated, limited the amount of labor that can be used to assemble the box parts, and such assembling cannot be accomplished rapid enough, it being possible to only assemble one box blank at a time to utilize the full or approximately full capacity of the stapling devices. To overcome this difficulty and greatly increase the productive capacity of the stapling machines, [fol. 277] we utilize the combined carriage and former above described which not being an integral part of the stapling machine, allows any number to be used, thus while one carrier is passing through the stapler, others are being relieved of the completed blank and parts assembled on others, so that a continuous and constant train of carriages may be fed into the stapler. An additional advantage is the great saving in cost of material. In the former method the cleat material as well as the sheet must be in one piece, the cleats being step-mitered after the sheet is stapled thereto and the sheet scored, so as to divide the cleats and sheets into four sections before the blank can be folded, consequently requiring a high grade of material owing to the large dimensions required. By the use of carriage and former, lumber of but one-fourth the dimensions as in the former method can be used, as the cleats are step-mitered before being assembled in the former or carriage and a distinct and separate sheet for each side forming the box disposed upon the cleats, so that the blank is ready for folding after the stapling operation is completed. While no mechanism is shown or described herein for stapling the box blanks nor means for connecting the carriage to such a machine in order to co-operate therewith, such mechanism has been the subject-matter of separate applications copending herewith."

These are all statements which make the divisional application as filed, at the time it was executed and sworn to by the applicants, appear like a substitute for their prior application. True, this original divisional application contained the following statement also, to-wit (line 24, p. 11, to line 19, p. 12):

"Fig. 8 of the drawings illustrates a typical behavior of the wires following the application of a distorting force in a general diagonal direction, as, for example, when a

loaded box is dropped upon a corner. It will be observed that the mutually perpendicular side sheets at the edge A have relatively shifted along the length of the adjacent edges thereby bending the proximate portions of the wire to some extent. This bending of the wires results from a longitudinal pull thereon (resisted, of course, by the tensile strength of the wire) as the sides shift. Likewise, it will be noted that two boards on one side of the box meet at a junction B at which said boards have shifted some- [fol. 278] what along the length of their mating edges thereby again bending the wires by longitudinal pulls thereon which are resisted by the tensile strength of the wire. In each of these typical cases (i. e., at the edge corners of the box and also at mating edges of boards on a single side) the box parts, by reason of their separate structure, are permitted a certain amount of freedom to shift relatively without substantial reliance upon the strength of the wood itself to resist the distorting strains, substantially all of which are resisted by the tensile strength of the wire."

But the alleged "Fig. 8 of the drawings" was not in the case, was not in the drawings, and in the first action the Examiner said, "As there are but seven figures of drawings the description of Fig. 8 and all reference thereto in the specification should be erased," and hence the cancellation of the matter above quoted.

As a matter of fact, this so-called divisional application, and the patent granted thereon, actually contain a great deal of new matter which is not found in the original or parent application which finally matured into patent No. 1,128,144, as will be seen by a comparison of the two patents. For example, the so-called method patent in suit describes the conversion of the blank into a box, and sets forth the twisting of the binding wires together, but such method of converting the blank into a box is nowhere shown or described in the original or parent application (No. 228,443, filed October 14, 1904), for the original drawings and specifications of this application nowhere show or describe what procedure is to be followed in converting the blank into a box.

Also, in the so-called method patent in suit there is considerable talk about the conditions under which "the

meeting edges of the side sheets merely tend to slide upon each other without mutual strain," but this is not a part of the method of making the blank, or a part of the method of converting the blank into a box, but is (assuming that any such sliding movement ever takes place) merely a structural feature of the box, or a feature of its behavior as a box, and is not a part of the method of assembling materials to produce the box. Furthermore, this alleged longitudinal sliding of the edges of the sheets on each other was nowhere shown or described or even hinted at in the original or parent application of which the method patent in suit purports to be a division. In other words, all this is a new theory and absolutely new matter in the [fol. 279] divisional application, and in the patent granted thereon, for such theory or feature of construction was nowhere shown or described or even intimated or implied in any of the original applications filed by the patentees Inwood & Lavenberg for their portable work-holding machine and for the box blank itself.

In none of the Inwood & Lavenberg applications filed in 1904 is there any mention made, either directly or impliedly, of the twisting of the ends of the binding wires together, and this appears for the first time in the so-called divisional application which was filed about ten years afterward and which matured into the so-called method patent in suit. The expression therefore, "completing the continuity of the wire binding," as appears in several claims of the method patent in suit, if intended to cover the twisting of the ends of the binding wires together, is in the nature of new matter and is a claim for something which does not appear in said original or parent application.

Now, the true method of the method patent in suit (except the twisting of the ends of the wires together) is shown in the Walker patents Nos. 763,579 and 767,613. Instead of twisting the ends of the wires together, the lid could be nailed or stapled down and the wire ends could be bent inside, like the Howenstine patent No. 453,479, and none of the original Inwood & Lavenberg applications discloses this method of using the box blank (by twisting the ends of the wires together to close the cover), but the old Rosback patents and many others do show this method of using a wire-bound box. The procedure de-

scribed in the method patent in suit, for the making of the blank, is disclosed in the patents to Craig, No. 864,955, of September 3, 1907; W. P. Healy, No. 827,097, of July 31, 1906; Miller, No. 815,197, of March 13, 1906, and Inwood & Lavenberg, No. 806,411, of December 5, 1905. The twisting of the ends of the wires together was known (not only as a method of using the Rosback box, but also as a method of using the Inwood & Lavenberg box) at the time of filing of the parent application, No. 228,443 (October 14, 1904), but this method of use was never shown or described or mentioned, or even intimated, until the so-called divisional application was filed, claims 2, 5, 6, 7, 8 of which all include the feature of "completing the continuity of the wire binding to encircle the box."

Now, considering this so-called method patent in suit (No. 1,128,252) as an alleged division of the original or parent application upon which patent No. 1,128,144 was [fol. 280] granted, said original application was filed October 14, 1904, and this divisional application appears to have been the first statement under oath by Inwood & Lavenberg that they thought they had invented a method or process, as well as the machine and the box blank made thereon. In the original application of patent No. 1,128,145, which was filed October 27, 1904, an attempt was made November 2, 1904, to introduce method claims, but the Examiner promptly objected and stated:

"There is no foundation for method claims in this case. Moreover this amendment cannot be entered unless accompanied by a supplemental oath, and the amendment is refused admission for that reason. It is to be noted however that the alleged method claims are not believed to cover proper methods but merely the operation of the machine covered by the other claims in the case, so that even if this amendment were supported by a supplemental oath and entered, the method claims contained therein would be subject to rejection."

Thereafter, on January 16, 1905, the applicants Inwood and Lavenberg, filed an amendment and asked to have the proposed method claims canceled, which was really unnecessary, inasmuch as the method claims had never been entered in the case, but which is significant. The two In-

wood & Lavenberg machine applications stayed in the Patent Office for a good many years, without any attempt to present method claims, until April 1, 1912, when an amendment was filed in application No. 228,443, containing method claims, but the Examiner promptly objected to this and required division. The significant thing up to this point is that the original applications were all filed without any method claims, that the informal attempts to claim the alleged method were nowhere supported by an oath signed by Inwood and Lavenberg, and that it was not until April 21, 1914, when the so-called divisional application was filed, that these applicants came forward and signed an oath or affidavit for an application containing method claims.

Even then, however, as previously explained, the application thus purporting to cover a method was filed with the same recital of the prior art and the same disclaimer which was originally filed in the parent application No. 228,443 (disclaiming the assembling of cleats in guides and the sliding of the cleats in these guides), and the so-called divisional application as originally filed has much more [fol. 281] the appearance of a substitute application for the original application covering the so-called "combined carriage and former for wirebound box machines," except that the title was changed and the specification was drawn to set forth matters and theories nowhere found in the original or parent application of which this method patent purports to be a division. In filing this divisional application the applicants Inwood and Lavenberg again reiterated that "This invention relates to a combined carriage and former for use in the manufacture of box blanks," and again reiterated that they regarded their invention as having a decided advantage over "the slow method of feeding blanks to machines where no portable or adjustable carriages and formers are used," and again reiterated that "It has been the practice heretofore in the manufacture of wirebound boxes to assemble the cleats and sheets to be stapled in guides forming an integral part of the stapling machine," and again reiterated that "This practice, as before stated, limited the amount of labor that can be used to assemble the box parts, and such assembling cannot be accomplished rapid enough, it

being impossible to assemble only one box blank at a time to utilize the full or approximately full capacity of the stapling devices," and again thus placed emphasis on the fact that their invention, whatever it might be, had nothing to do with the method which involves the assembling and sliding of cleats in guides, which latter is the method employed by defendant in this case.

On April 1, 1912, in application No. 228,443, the applicants presented what purported to be a method claim, as follows:

"The method of making a wirebound box which includes the wiring together of the different sections of the blank, by stapling the wires thereto, and simultaneously therewith maintaining space between the ends of the cleats thereof, whereby the immediate result of said stapling operation is the production of a foldable blank with flexible hinges bridging the said previously formed spaces between the ends of the cleats."

As stated, the Examiner replied that this claim was directed to divisional subject-matter, and required division. Thereafter, on April 21, 1914, as stated, the alleged divisional application was filed, but it is significant that this application not only was the first instance of method claims supported by the oath of the applicants Inwood [fol. 282] and Lavenberg, but did not contain any claim corresponding to the one just quoted. The claims presented under oath in the divisional application were quite different from any claim previously presented, without oath, and were based on a specification containing matters and theories, as previously pointed out, not found in the original or parent application.

The Inwood and Lavenberg Method Patent No. 1,128,252 discloses the same invention as the Inwood and Lavenberg Reissue Patent No. 12,725

The exact procedure, disregarding machinery and apparatus, disclosed in said method patent No. 1,128,252 is also illustrated and described in the expired Inwood and Lavenberg reissue patent No. 12,725, previously discussed. The disclaimer of the reissue patent makes it plain

that the method followed in making the blank shown in that patent involved the formation of separate cleats and sheets before they were wired together, and the disclaimer sets forth the disadvantages of the old method, and the specification and claims of the expired reissue patent in suit describe the box blank as made by the alleged new method, which latter is the same as that described and illustrated in this later method patent issued to these same patentees. The spacer blocks 7 of the later patent are not shown in the earlier expired patent, of course, but these spacer blocks are not a part of the abstract method, but are merely a part of the apparatus employed to carry out the alleged method described by the specification and claims in patents Nos. 1,128,144 and 1,128,145, as previously explained.

The method of making a wirebound or metal-bound box blank having cleats and sheets and wires or other binding strips, by forming the cleats and sheets separately in the desired manner, and thereafter fastening them together to produce a flexible blank, is the obvious method of making the box blank of the Howenstine patent No. 453,479, or of the Healy box patent No. 768,123. Details of such construction, for example, as whether the cleats are step-mitered or tongue and groove, or plain mitered, or whether the sheets have square edges or beveled edges, are obviously features of construction and are not features of the abstract method or process of making the blank, or of the method of making boxes.

The feature of having the edges of the sheets overhanging the ends of the cleats, and of having the sheets come [fol. 283] practically tight together at their edges when formed as a box blank, thereby to cause the binding wires to cut in at the corners of the box when the blank is folded, are merely things which are shown in the drawings and described in the specification of the expired reissue patent in suit, and are the things which are relied on in this expired patent to differentiate the blank and the method of making the same from the disclaimer contained in this patent. The patents to Healy, No. 768,123, and Howenstine, No. 453,479, do not show square edges for the sheets, but they do show beveled edges for the sheets, and the difference between beveled edges and square edges is not a difference in procedure or modus operandi in making the

blanks, but is merely a very slight difference in structure, and the claims of the method patent in suit, No. 1,128,252, describe the method or modus operandi disclosed in the foregoing Howenstine and Healy patents.

Some claims include "leaving said wire binding free from attachment to the side unit proximate the lateral edges thereof," but this is not a method step, but merely a detail of construction. Furthermore, it is merely what is shown in the Rosback patents, and in the expired reissue patent, and staples are never driven in any wire-bound blank at points close to the longitudinal edges of the sheets. It is true of the box of the Healy patent No. 768,123, and in this patent it would be merely substituting one well-known form of box-blank binding for another to use wires instead of the narrow strips of metal.

Claim 9 of the method patent in suit describes merely the method and construction shown in the patents to Howenstein, No. 453,479; Averill, No. 661,481; Lipps & Springer, No. 801,998, and others. The last portion of the claim is not a part of the method of making the blank, for the procedure to be followed in making the blank, is the same whether or not there is any relative shifting of the edges after the box is made and used. The claim does not say at what point in the "method of making box blanks" this relative shifting of the edges takes place, but presumably it does not take place in the method at all, but only (as stated in the specification) at some later date in the use of the box.

Claim 9 of the method patent suit specifies a "co-operative foldable relationship" for the sections, which would appear to mean the arrangement whereby the sheets "may abut at their edges," whereby "this folding may have the effect of tensioning the wire over the corner, as by forcing the wire to press or cut into the corner," for while the sections of any wirebound box [fol. 284] blank (such as Howenstine or Healy) are foldable, they may not have this peculiar "co-operative" action. This action is also made a part of the description of claims 12 and 13, and this is not a part of the method of making the blank, but is merely the same structural feature shown and described in the expired reissue patent, and made very much of in the plaintiffs' testimony in the Chicago Mill and Lumber Company suit. However, and re-

gardless of whether it is called method or structure, it is not found in defendant's box blank, either during the making thereof or during the conversion of the blank into a box, for defendant spaces the sheets too far apart to produce this tensioning action. By means of this feature the patents in suit disclose a blank which is capable alone of serving as a box, but defendant's blank is not a complete box in any sense of the word, and cannot be folded to form a box by itself. The "4-one" blank, like the Healy blank, patent No. 768,123, is a complete box in itself, when folded into box form, but defendant's blank has no such "co-operative" folding action as will enable it to serve alone as a box.

Claim 17 includes spacing the cleats "a predetermined distance" to permit them to be "folded" into "a predetermined relation in forming a box," which would seem to describe the folding of the cleats end to end, or the engaging of the cleat ends on the blank. This is not a feature of "The method of making box blanks," but defines one of the structural features of the resulting box and is concerned with the operation of converting the blank into a box.

This claim 17 describes a structure permitting the cleats and sheets and wires "to be folded together," and in no sense do the cleats of defendant's blank fold together, for they never at any time (not even in the box) fold together at their ends, or in any other way. None of these claims under discussion describe defendant's box blank or the mode of procedure followed in making the blanks or in converting them into boxes. Defendant has cleats which are first secured to the heads or end walls, to form cleated heads from cheap or scrap strips of veneer, before these cleats are finally secured to the cleatless sections of the blank, and the patents in suit disclose no such procedure which results in a cleated blank which in itself (without any end walls) is a fully cleated and usable box when folded.

There are important differences between defendant's method and machine, on the one hand, and the method [fol. 285] and machine of the patents in suit. In the disclaimer filed in application No. 228,443 (and repeated under oath in the so-called divisional application No. 833,353) Inwood and Lavenberg complain that with the "practice heretofore" (which was, as they say, to "slide the cleats

longitudinally in their guides") the manufacture of the box blanks could not "be accomplished rapid enough, it being possible to only assemble one box blank at a time," but this is exactly what defendant does. With a large number of portable workholders, unskilled and slow persons can fill the workholder, very true, but they can only go through the machine one at a time, and the machine of the patent in suit is obviously slow. Also, with the portable workholder, unskilled and slow persons may fill the workholder proper, as the spacer blocks accurately position the cleats and positively hold them against displacement in either direction. These "set-ups" may then be stacked up and wired the next day, if the machine is not running, and each "set-up" will remain in proper form. Defendant assembles one blank at a time, while the blank is moving forward, as the attendants are skilled and can feed the sheets and cleats by hand without stopping the fast-running machine. If the machine were very long (which it is not) there might be positions enough for several attendants to be assembling two or more blanks at the same time, but such is not necessary as only one blank at a time can pass under the staplers, and the attendants are skilled to feed the sheets and cleats by hand without stopping the machine. With the portable workholder of the patents in suit no section of the blank moves away, of course, until after all of the sections are in place. In defendant's machine the front section of the blank moves forward immediately, and each section inserted behind does the same thing, so that the blank is moving forward while being assembled. A hopper may be used in the defendant's machine to feed the cleats and sheets, if desired, just as the sheets are fed by a hopper in Greenstreet and in other patents, but with skilled attendants to run the machine the hopper is not necessary.

Now the portable workholder fallacy seems to have been exploded several times. The plaintiffs herein abandoned the portable workholder method in favor of chain-feed machines. The patentee W. P. Healy filed the Norman E. Brown application in 1904, which eventuated in patent No. 1,276,484, but promptly followed this with the Craig (No. 864,955) and Miller (No. 815,197) patents for chain-feed machines. The patentee Fuller started with the portable workholder idea (patent No. 690,416), [fol. 286] as we have seen, but very soon followed with a

chain-feed machine (patent No. 694,467) for making his basket covers. There would seem to be no economy or efficiency, from the standpoint of good engineering, and efficient shop practice, in employing a number of unskilled boys or girls to load portable workholders, as compared with a highly organized chain-feed machine (like the defendant's) run by persons skilled enough to keep up with the motion of the feeding means. The story of the abandonment of the portable workholder idea in favor of the chain-feed idea (thus showing that the "fundamental" of the Rosback machine is the correct idea) is very graphically told in the archives of the Patent Office, as illustrated by the various patents mentioned. The portable workholder of the patents in suit tells the person doing the work just how and where to place the cleats, and there is nothing to hurry the work, for the "set-up" thus being formed is stationary. In defendant's machine, however, the attendants must act quickly and with certainty and use some skill in the placing of the material in the "guides forming an integral part of the stapling machine" (this is quoted from the disclaimer filed in the original Inwood and Lavenberg application and repeated in their divisional application) for the feed belts are moving intermittently. If it be said that the defendant has an endless chain of workholders or formers, the answer is that so has Rosback (patent No. 614,348), and Fuller (patent No. 694,467), and Jonas (patent No. 538,021), and Greenstreet (patent No. 579,574) and others. The method of the patent in suit cannot be practiced on defendant's machine, as there are no spacer blocks and the cleats would not be spaced part if such method (cleats on each and every sheet) were attempted. Moreover, the patents in suit are all limited to the tight edge-to-edge method of positioning the sheets and keeping them in place, and this is impossible in defendant's machine. The lap corner, therefore, is compulsory in all of the patents in suit, as is also the cutting in of the wires at the corners. With defendant's method and machine, the sheets can be cut narrower to reduce the lap or to even entirely eliminate the lap corner. Defendant may make a tight box or an open-corner box, just as Greenstreet (No.

579,574) says he can, but not so with the patents in suit. There is no difference between the method of patent No. 1,128,252 and that of the expired reissue patent or between the obvious method of Howenstine and Healy and said patent in suit, except that the patent in suit shows spacer blocks and other mechanical means, and defendant does not use the mechanical spacer-block method.

[fol. 287] Redirect examination.

By Mr. Cox:

R. D. Q. 443. Since your cross-examination and during the further study you have given the case as a result of this protracted cross-examination, what can you say regarding the principle of the machine patents and the method patent in suit as compared with the principle involved in defendant's machine and method?

A. The principle or mode of operation involved in complainants' machine patents and method, and in defendant's machine and method, are radically different, as I think I pointed out in my direct deposition in detail. Taking up the workholder patent, for instance, the principle there involved is that of a workholder with stationary spacing blocks into which the cleats are placed so that both ends thereof contact with the spacer blocks and they are necessarily accurately positioned when the side sheets are placed on top of them and are clamped down by the bail so that the workholder with the wooden parts assembled therein can, if desired, be laid to one side and fed through the stapling machine at any desired time thereafter, the next minute, the next hour or the next day, or even the next month.

The principle involved in defendant's machine is radically different in that the stationary guides upon which the cleat sections are placed have no spacing blocks, but do have a pair of chains running thereover with cleat pushers and sheet pushers thereon, there being twice as many sheet pushers as cleat pushers. The cleats are engaged at one end only by the cleat pushers, and as they are engaged, the cleats with the superimposed sheets are thereby fed at once beneath the staplers, so that with defendant's machine the stapling or wiring step necessarily immediately follows the assembly step, thus making a radically different prin-

ciple and mode of operation,—a mode of operation which I may say is substantially identical with that of the prior art Rosback patent.

The different principle and mode of operation already pointed out in connection with the machine is also inherent in the method of operation, and constitutes a different principle and mode of operation from that set out in complainant's alleged method. There is also a further difference in principle or mode of operation in that with plaintiffs' method all the cleats and sheets are assembled at one time, and they are all stapled together and thus connected to the wires by the one operation while the product is still a blank. In defendant's radically different principle of making the box, only half of the cleats are assembled and stapled to the [fol. 288] sheets and wires while the material is still in the flat blank form, and this difference necessitates the subsequent stapling by additional staples of the other cleats originally affixed to the ends of the box to the side sheets. I might go ahead and point out many other differences, but these other differences have all been set out in my direct testimony or deposition, and I do not recall anything in the cross-examination that in any way affected these facts as set out by me in said direct deposition.

*R. D. Q. 444. Then as I understand* you the principle of plaintiffs' machine and method might be characterized as a portable workholder method as distinguished from a stationary guide and moving pusher method, and that viewed from a different angle the plaintiffs' principle may be characterized from a mere guide and pusher method. Also that as regards the work itself—by that I mean the box or box blank—the plaintiff may be regarded as having a full-cleated blank, whereas the defendant has an alternate cleated blank in which every alternate side section is without cleats and partakes to that extent of the character of the cleatless blanks of the prior art. Please state whether or not I correctly understand you, and if not kindly correct me.

A. You are entirely correct.

R. D. Q. 445. Please state whether or not in view of the teachings of the machine patent in suit that patent might be properly regarded as showing a guideless machine.

A. Understand that you are referring to the Inwood & Lavenberg patent No. 1,128,145, that is correct.

R. D. Q. 446. With respect to those portions of the cross-examination which deal, or seek to deal, with the proposition of having the sheet edges flush with the ends of cleats, what have you to say regarding the different ways in which this can be done?

A. There are two different ways, each producing different results, and moreover, there is considerable difference resulting in the matter of the tensioning of the wires under the same conditions, depending upon whether step-mitered cleats are employed, such as are shown in the Inwood & Lavenberg patent, or whether tongue and groove cleats are employed such as defendant uses.

Referring first to the step-mitered cleats, and assuming that the ends of the cleats are made flush with the edges of the side sheets by bringing the cleats up to the edges of the sheets, then there is, with the Inwood & Lavenberg reissue patent disclosure thus modified, no substantial amount of wire between the edges of the sheets, and for that reason [fol. 289] it is impossible to fold the sections together, as I stated in answer to some hypothetical question or questions, where I understand that condition to exist.

Another method of securing this flush relationship would be to cut off enough of the side pieces so that their edges were moved back, so to speak, to the ends of the cleats, and if the assembly were otherwise unchanged, and the original arrangement disclosed in the Inwood & Lavenberg patent employed, then there would be a length of wires between the adjacent edges of the sheets equal to twice the thickness of the side sheets, assuming that the proportions of the sheets and cleats were such as are illustrated in the Inwood & Lavenberg reissue patent in suit. With this arrangement the blank could be folded, and the wires would cut into the corners a little, but not nearly so much as is shown in dotted lines in Figure 4 of the Inwood & Lavenberg reissue patent in suit. To cause it to cut in to that extent the distance between the adjacent edges of the side sheets would have to be substantially less than twice their thickness.

If now we take the tongue and groove cleats such as are employed by defendant, and bring them to the edges

of the side sheets, there is no wire, so to speak, between the edge of the side sheets, if the edges are placed in juxtaposition as shown in the Inwood & Lavenberg reissued patent in suit. If with this relationship the box can be folded, the wires would be compelled to cut into both corners very deeply, probably more so than is really practical of attainment.

If now the tongue and groove cleats were brought up to the edges of the sheets, but the edges of the sheets were spaced apart a distance equal to twice their thickness, and you then folded the blank, there would be no tension whatever due to the lack of length of wire, although due to the hard wire and its inability to bend exactly at right angles, the wire might press against the corners of the edges of the side sheets.

I might note that there is a substantial difference in the action of these tongue and groove joints when the blank is folded from what occurs with the step-mitered cleats of the Inwood & Lavenberg patents in suit. In the Inwood & Lavenberg blanks the cleats react firmly against each other in tensioning the wires, whereas in the defendant's tongue and groove cleats there is substantially no reaction between the cleats themselves, but the reaction, if it occurs with a lapped edge, would be of the sheets against each other, and with the unlapped edge it would [fol. 290] be of one sheet edge against the cleat edge of the other section, and vice versa. In other words, there will be no direct reaction between the ends of the cleats themselves, because in defendant's boxes the depth of the grooves is a little greater than the thickness of the cleats.

I might also note that in the folding of defendant's blank over the box heads there could be no substantial re-action of the cleatless side sections against the others because, not being attached to the wires, the cleats on the box ends are free to move relatively to the other sheets to some extent, thus destroying the effective reaction which is secured with the Inwood & Lavenberg blank because all the sheets and cleats are firmly secured together by the wires, and cannot have any movement relative to each other without affecting the tension of the wires.

R. D. Q. 447. During your testimony you have employed the term "blanks" and have explained the meaning of the

term in the trade. Can you produce any patents which tend to explain and corroborate your definition?

A. Yes. I have here four paper box patents, such as I referred to during my cross-examination, which patents are as follows: Wilson, 303,778, Aug. 19, 1884; Baker, 476,237, June 7, 1892; Johnstone, 636,806, Nov. 14, 1899; Fiske, 712,434, Oct. 28, 1902.

R. D. Q. 448. Please read your answer to X Q. 145 and explain what you mean.

A. I take it your question refers to the second sentence of the answer, as the first sentence seems to be clear. In stating that I saw no reason "why he could not have drawn a claim to the box as well as to the blank" I had in mind the practice which existed in the folding box art where it is permissible to claim either the blank or the box or both in the same patent. For instance, in Wilson patent 303,778 just offered in evidence, claim 1 is for "a blank or box," etc., while claims 2, 3 and 4 call for a box, and not for the blank. Similarly in the Baker patent 476,237, claims 1 and 2 call for a paper box, while claim 3 calls for a blank. Likewise in the Fiske patent 712,434, claims 1 and 2 call for a box blank, while Nos. 3 and 4 call for a one-piece box. I did not have in mind in making the statement the question of the patentability or rather the patentable novelty of the box, but obviously there is much [fol. 291] more ground to claim patentable novelty for the Inwood & Lavenberg blank than for the Inwood & Lavenberg box, inasmuch as the Inwood & Lavenberg blank is substantially different from the Rosback blank, whereas so far as I can see there is little difference between the Inwood & Lavenberg completed box and the completed Rosback box.

Redirect examination closed.

Defendant's counsel also offers in evidence from the aforesaid Gibbons record in equity No. 2689 the exhibit drawing referred to opposite page 23, in the above quoted testimony of John H. McElroy the same to be marked in the present cause Defendant's Exhibit No. 10.

Defendant's counsel also offers in evidence from said Gibbons record in equity No. 2689 certain parts of the deposition of Guilford C. Babcock as follows:

Cross-examination.

By Mr. Cox:

I am an officer of only one of the plaintiffs, 4-One Box Machine Makers. Mr. D. P. Murphy is president of the other plaintiff, Wirebound Patents Company. I am financially interested in 4-One Box Machine Makers and in the outcome of this litigation. "4-One box" is a trademark name for the product made by our licensees.

X Q. 163. Is it suggestive of any characteristic of the machines or the products?

A. In selecting this name, it was probably borne in mind that the box was made of four sections so constructed and put together that under stress its four sections act as one unit. Another thing that was probably in mind was that the box was made of four things: (1) cleats; (2) thin boards; (3) binding wires; (4) staples. These four were so put together that they made one unit.

Our company is not using machines like the ones shown in the drawings of the patents in suit. I think they operate under the same principle, but the drawings do not illustrate the machines that we now use.

X Q. 165. Does the following correctly describe the manner in which the machine illustrated in the drawings of the machine patent in suit operates?

"The method of making wirebound boxes having individual cleats and individual side pieces separated at the lateral corner edges of the completed box and connected [fol. 392] by wires at said edges, which comprises assembling previously formed individual cleats with the separate previously formed side material for an individual side to provide a side unit of the box; assembling additional such side units to provide the other sides of the box; securing to the cleats of each side unit a wire binding extending completely across said unit; connecting said side units by said wire binding, while leaving the latter laterally flexible to accommodate relative shifting of the separate meeting edges of the pieces of side material; arranging said side units in box form; and completing the continuity of the wire binding; whereby relative longitudinal shifting of meeting edges of pieces of side material tends to bend the

wire binding out of normal alinement, and is resisted by the tensile strength of the wire."

A. It seems to, down to the word "arranging" which has to do with the handling of the box blank after it leaves the machine.

X Q. 166. It was the practice in connection with the old Rosback machine to do what is recited in the above question, following the word "arranging." To make myself clear, you referred on your direct examination to one or both of the Rosback patents 608,796 and 608,917. In Figure 37 of the latter patent, for example, there is illustrated an example of a box

"arranging said side units in box form; and completing the continuity of the wire binding," etc.

Isn't that so?

A. I do not recall ever having read the specification of either of the Rosback patents referred to, or, with the exception of the box patent, of the four patents in suit. I have examined the drawings of the patents in suit however. No, the continuity of the wire binding has apparently not been completed in the illustration, although the side units have been put into box form.

X Q. 167. And the illustration shows the ends of the wires projecting so that they can be twisted together to complete the continuity of the wires when the box is closed.

A. Yes.

By Mr. Janney: I have refrained from making any comment until the witness should have finished the preceding answer. I feel obliged, however, to point out the wholly [fol. 293] misleading results that are likely to ensue from asking such questions of a witness who is not a patent expert and is not familiar with the terminology employed in patents or the interpretation of texts taken from patents. The foregoing answer is a good illustration. The witness, naturally, has wholly failed to observe the significance of the expression "side units" in the excerpt quoted from the claim; and has equally failed, naturally, to observe that in the Rosback box, there is no such thing as a "side unit" in the sense in which that expression is employed in the claim.

I protest against any examination of this witness which calls upon him to interpret or construe language taken from patent specifications. The result is almost sure to be misleading: and there is no assurance whatever that the witness will understand the significance of expressions quoted from the patent apart from the contexts thereof.

By Mr. Cox: The method patent in suit is for nothing more nor less than the functions or operation of the machine of the machine patent in suit, except that to make the method claims appear to be the proper method claims they go on and recite the old scheme of wrapping the side material around the box ends and then twisting the ends of the wire to complete their continuity. This witness has testified that he has been in the wirebound box industry almost continuously for about sixteen years and it would seem to be a fair assumption that he was skilled enough in the art to be able to understand the description of a method, whether it constitutes a patent claim or not.

By Mr. Janney: In the first part of Mr. Cox's remarks he has stated a question of law which this witness cannot deal with: and which the court alone can be asked to answer —except as it may appear whether or not the method in question can be practiced without the use of any machine at all. I shall not impede in any degree such cross-examination as calls upon this witness for his own knowledge of the operation of machines or the practice of processes; but I do protest and shall continue to protest, against any questions which require this witness to interpret or to ascribe particular meaning to expressions taken from patent specifications.

X Q. 168. What machine was in use for making box [fol. 294] blanks in the factory of the South Bend Healy Box Company in 1905, 1906 and 1907?

A. I saw the box-blank machines with the portable workholders in use in the plant of the South Bend Healy Box Company in South Bend in the fall of 1906, and they continued to use these machines through 1907. I think one of them was built in 1904, and the other one was built in 1905.

X Q. 169. There were never but three machines built, were there, having the portable workholders?

A. I never saw but two that I recall.

At the time that I became connected with this business, besides the box-blank machines with the portable workhold-

ers in use in the plant of the South Bend Healy Box Company, box-blank machines with traveling heads were in use. In this machine, the stitchers traveled over the work while it was held in the proper relationship in the former chains. As I remember, we commenced using chain feed machines instead of the ones having portable workholders and those having the traveling stitchers, in about 1908 or 1909. In the chain feed type, the chains have an intermittent traveling movement to bring the material to a stationary stitcher or stapler.

X Q. 172. Then to borrow Mr. Janney's practice of summarizing your testimony, the history of the development as you know it was first the old Rosback machine; then two or three machines with the portable workholder; then some machines in which there was a traveling stapler or stitching mechanism and the material was supported on chains which were stationary during the stitching operation but after its travel to take the completed blank away and bring up material for a fresh blank and then you finally, about 1908 or 1909, made the machine in which the materials rested upon a chain which had an intermittent traveling motion to bring the material to the stapler, after the fashion of your present machine. Is that correct?

A. I never saw the Rosback machines. The Rosback box was a different box from the box produced by the other machines that you refer to. With that explanation I think your statement gives the time schedule.

In 1906 the South Bend people were operating under patents as licensees of the National Wire Bound Box Company.

To describe the different corporate names under which I and my associates have been operating since 1906, we operated as National Wire Bound Box Company up to 1910; [fol. 295] when Wirebounds Corporation, a separate corporation, purchased the assets of the National Wire Bound Box Company. In 1920 Wirebounds Corporation changed its name to 4 One Box Machine Makers; the same corporation, there being no change except the change in name. The plaintiff, Wirebounds Patents Company, was organized in 1914 and acquired the title to various patents and inventions, including those of the patents in suit; and also acquired the rights of the licensor in an exclusive license under which Wirebounds Corporation was then operating. In 1906 I had an arrangement with the National Wire

Bound Box Company whereby I was authorized by them to negotiate with certain prospective licensees of the National Wire Bound Box Company looking toward their becoming licensees of that company. The South Bend Healy Box Company was a box manufacturing company whose business was making and selling 4 One boxes, under license from the National Wire Bound Box Company.

Our chain of title to the patents in suit passes through William P. Healy.

The General Box Company is a corporation in the business of making boxes, with its principal office in Chicago, and that company is a licensee of plaintiffs in this suit. Neither of the plaintiff corporations is under promise to the General Box Company not to grant any more licenses. Any responsible concern might obtain a license today from the plaintiffs under the patents in suit if we should consider them to be desirable prospective licensees having in mind the business that has already been established. In reaching our conclusion, we would probably be governed by the opinions of our present licensees as to the desirability of the prospective licensee. Our machines, or at least the patents in suit, covering the machine patent and the work-holder patent are for making box blanks only, and not for making finished boxes.

X Q. 183. And the so-called box patent is in reality for a box blank?

A. I always thought it was for a box.

X Q. 184. In your answer to Q. 36 on direct, you say that at the time of your investigation in 1906, as far as you were able to learn, it was not being produced commercially at all. Didn't you ever see any Rosback boxes?

A. Yes. I never saw the machine.

With reference to the extent of manufacture of the Rosback boxes, there were a few thousand made in South Bend, [fol. 296] so I was told, possibly only a few hundred. I am not sure.

X Q. 186. Tongue and groove cleats must be cut and formed before being attached to the blank. Is that so? At least so far as the commercial production of wire-bound boxes is concerned?

A. I know of no way of doing it on the commercial box shop scale after they are attached to the blank.

The two machines that I knew of back about 1906 that employed portable workholders or carriages, had guides for the workholder to slide in. The first chain feed wire-bound box machine which I saw in use making 4 One blanks, was at Indianapolis, Indiana, in 1906.

With our 4 One blank machines, it is not true that the attendant must place eight cleats in the machine for each blank. We had one kind of box which was made and is still being made with every other cleat omitted. Very shallow boxes are made that way on our box blank machines. The uncleated sides are thick enough to furnish their own rigidity.

X Q. 192. What would happen in your machine if every other cleat were omitted, leaving two of the sheets unsupported by cleats?

A. Am I to understand that there is to be no change of any sort assumed except that four cleats are left out of the former chain?

X Q. 193. Yes, let us assume that for the moment.

A. The ends of the long outside staples, and by outside staples I mean the staples that ordinarily straddle the binding wire, go through the sheet material and enter the cleats, would project beyond the sheet material or thin boards to a considerable extent, in the four spaces from which the cleats had been omitted.

X Q. 194. In your answer to Q. 21, you had in mind your present type of machine, didn't you, and not one with a removable workholder?

A. I probably did, but the same limitations would apply to the machines with the portable workholder.

X Q. 195. You don't mean to say, do you, that a machine having a portable workholder would be as fast as one of your chain-feeding machines?

A. The ability of the workholder, once the work is in it, to pass through the machines is equally great as the ability of the endless chain type of workholder.

X Q. 196. In making 4 One boxes, what kind of machine do you employ for forming the cleats?

A. Double end tenoners and gang rip saws.

X Q. 197. In talking about the fins which were used on [fol. 297] the spacer blocks in the 1906 portable workholder, you say the quality of the product would be probably a little inferior if the fins were left off? Why is that?

A. The laborer placing the sheets in the former would have to be a little more careful to get them in the right position.

X Q. 198. Is that the only reason for your saying that the quality would be a little inferior?

A. The failure of the laborer to get the sheets in the proper position would be the only reason.

I regard it as important that the wires cut into the edges of the sheets when the blank is folded, as shown at 6, Figure 4, of the box patent in suit. I think that the greater the spaces between sheets, the less there will be of this cutting into the sheets. I don't know how far the sheets would have to be spaced apart in order to avoid any cutting of the wires when the blank is folded. There would be such cutting in if the spaces between sheets were as great as the thickness of the sheets. In actual practice, there is a cutting in when the spaces between sheets in the finished blank is equal to the thickness of the sheets.

X Q. 203. What do you think would produce it: the drawings of the box patent show that the cutting in is produced by the action of the outer corner of one sheet fulcruming upon the inner corner of the adjacent sheet?

A. The distance between sheets, the relation of the sheet edges to the cleat ends, and the relation of the cleat ends to each other, all have a bearing in producing what we have called tensioning of the wires at the corners of the box and what you have referred to as the cutting in of the wires.

X Q. 204. I wish you would explain how such a tensioning of the wire can be obtained in a case where the space between sheets in the blank is fully as great as the thickness of the sheets. In my previous question, I employed the words "cutting into the edges of the sheets" because that is the exact language in the specification of the box patent.

A. I have made a sketch which shows how the tensioning can be obtained in a case where the space between the sheets in the blank is exactly that of the thickness of the sheets. This illustration shows how a tenston greater than $^3/_8$" at each corner can be obtained. By a tension of $^3/_8$" I mean that the distance between staples A and staples B in the blank is $^3/_8$" less than the distance between staples A and staples B in the box, so that the wire being fastened under

staples A and staples B in the blank must cut into the sheet [fol. 298] material at the corners of the box.

By Mr. Janney: The sketch made by the witness is offered in evidence as Plaintiffs' Exhibit 10, Babcock's Sketch.

(Here follows Plaintiffs' Exhibit No. 10, side folio 298½)

X Q. 205. In this sketch, which shows the tongue and groove type of cleat, one of the cleats projects 5 16" beyond the edge of the sheet, doesn't it?

A. Yes.

X Q. 206. But if the cleat extended to or short of the edge of the sheet, there would be no such action, would there?

A. If the distance between sheet edges in the blank is exactly equal to the thickness of the sheets and if the sheets extend exactly to the ends of the cleats, there would be tension of the wire at the box corners.

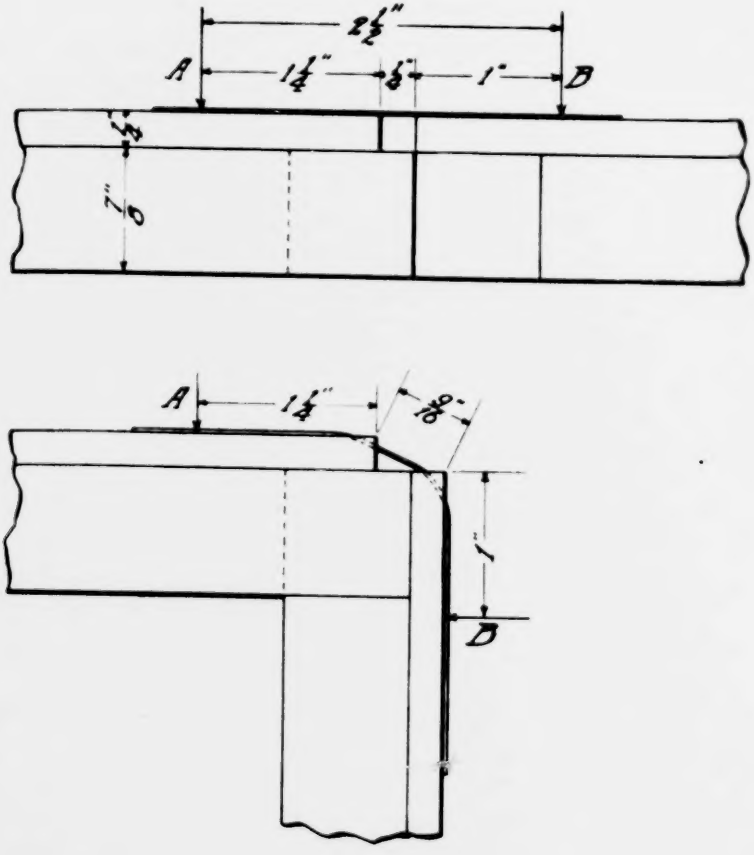
If, on the other hand, the distance between the sheets is exactly equal to the thickness of the sheets, and if the sheet attached to one cleat extends exactly to the end of that cleat, and if the sheet attached to the other cleat extends beyond the end of its cleat a distance equal to the thickness of the sheet, and if the cleats are ⅞" wide, having tongues ⅞" long and grooves ⅞" deep, as shown in the sketch, there would be tension of the wire at the box corner to an extent sufficiently greater than the diameter of the binding wire to allow for the fact that binding wire does not bend at an exact right angle.

Again, assuming that square end cleats ⅞" wide are used, and the distance between the sheets is exactly equal to the thickness of the sheets, and if the sheet attached to one cleat extends exactly to the end of that cleat, and if the sheet attached to the other cleat extends beyond the end of its cleat a distance equal to the thickness of the sheet, there would be very great tensioning of the wire at the box corners.

X Q. 207. As far as you know, the defendant doesn't make a construction like that suggested in the last paragraph of your answer, does it?

A. No. As far as I know, the defendant only uses tongue and groove cleats.

X Q. 208. Now, as to the tension due to the diameter of




PLAINTIFFS' EXHIBIT No. 10.

BABCOCK'S SKETCH

the wire, tension to that extent was produced in the old Rosback creased box blank, wasn't it?

A. I think so.

X Q. 209. In the patents in suit, the drawings where they show a blank, show the sheets either in actual contact at the edges, or substantially so, don't they?

A. There seems to be a slight separation.

X Q. 210. But in the machine and in the portable work-[fol. 299] holder patent, there is nothing shown to keep them separated, is there?

A. Yes. The rod that served as a pressure bar would keep the sheets in the position in which they were put in the workholder.

By Mr. Cox: Defendant's counsel asks plaintiffs' counsel if he has any objection to defendant's counsel reminding the witness that the specification of the box patent in suit says:

"It may appear from the drawing that difficulty would be experienced in folding the sections owing to the edges of the sheets abutting, and the same being held in that relative position and against movement away from each other by the reinforcing wire."

By Mr. Janney: Plaintiffs' counsel has no objection if the witness is not called upon to interpret the language referred to.

X Q. 211. If I should describe the drawing of the box reissue patent in suit as showing the edges of the sheets abutting, would you say that you think I'm wrong?

A. Yes, I would think you were wrong. (Reference has been made to Fig. 3 of the reissued patent.)

X Q. 212. Then you think the drawings of the box patent show a construction in which the edges cannot be correctly described as abutting or substantially abutting?

A. I do not know what you mean by "substantially abutting." I do not think that the sheet edges shown in Fig. 3 abut.

X Q. 213. Judging from the scale of drawing, how far do you think they are apart? Wouldn't you say that the thickness of the sheet is four or five times the distance between the edges of the sheet?

A. It looks to me to be about four times as thick.

X Q. 214. Well, then, I shall characterize such an arrangement as a tight-sheet arrangement. In such a tight-sheet arrangement, there would be a cutting in or sinking in of the building wires, upon folding the blank, even though the cleats were absent, wouldn't there?

A. Yes.

X Q. 215. And in the spaced sheet arrangement, if the sheets are spaced as far apart as their thickness, plus an amount sufficient to allow for the diameter of the wire, there would be no such tensioning or sinking in of the wire when the sheets were folded, would there?

[fol. 300] A. Practically none. A little allowance beyond that of the wire must be made because wire does not bend at right angles; that is, an exact right angle. I am assuming that there are no cleats at all on the blank.

X Q. 216. This latter arrangement is the one shown in the Greenstreet cleatless blank, isn't it?

By Mr. Janney: This witness has already testified that there were various specifically different kinds of Greenstreet cleatless blanks. The terms of the question are too general. If the witness desires to describe a specific Greenstreet blank and then to make therewith the comparison suggested by the question, he may do so. But he should make sure that the Greenstreet blank involved in his comparison is definitely described in his answer.

A. One of the Greenstreet cleatless blanks or mats, as they were called, that was largely used, was made of strips of wood about 3" wide and about $\frac{1}{4}$" thick. These strips were fastened together by binding wires stapled to them. The distance between the strips, as I remember it, was about $\frac{3}{4}$". These mats were nailed to the ends, one side being nailed first, and whether or not there was tension of the wire at the corners depended upon the pull or lack of pull which the nailer used in holding the mat in position while it is being nailed to the end.

I have seen a Greenstreet box with cleated or panelled ends. I say that the Greenstreet box is more expensive because in order to produce a Greenstreet box of the same strength or carrying capacity as the 4-One box, thicker material is needed. There are other reasons, but this one reason alone is enough in my judgment to take it out of the competitive field.

I do not recall whether the Greenstreet machine had a separate pusher for each slat.

I think the portable workholder would work without guides.

X Q. 221. But you never saw a machine in which an attempt was made to make it work without guides, did you?

A. No.

In the machines which I saw in which there was a portable workholder, I don't know whether the guides prevented the workholder from jumping up out of engagement with the toothed rollers as well as guiding them in the proper line.

I do not know whether in the old Rosback machine there were means for positioning the cleats relative to the sheets. I never saw a Rosback machine.

[fol. 301] X Q. 224. There's nothing shown in any of the patents in suit for positively positioning the sheets endwise of the cleats, is there?

By Mr. Janney: The patents in suit speak for themselves very definitely, and the witness has frankly admitted that his familiarity with the patents is based simply upon an inspection of the drawing. There seems to be no reason why the witness' inadequate information should be called for when the patents themselves are entirely unambiguous.

A. I do not know.

I think the Plymouth Manufacturing Company is still making intermittent cleat box blanks. I don't know whether we threatened that company with suit for infringement in the spring of 1922 after we brought suit against the present defendant. I never saw the Plymouth machines.

As a practical matter, it is desirable but not necessary, to have fins or spacers to space the sheets in order to produce the lap-cornered box. On our standard chain feed box-blank machines at the present time, we have fins on our spacer blocks for sheet spacing. We also use guides for the belts which carry the sheets. We have many times made box blanks and I have seen them made, in which the sheets practically abutted each other. That is, where the sheet edges came much closer together than the thickness

of the sheets. Please bear in mind that the fins on the spacer blocks in the regular commercial practice are from 1 32" to 3 64" thick only, whereas the thinnest sheet material used is $\frac{1}{8}$" thick and from that up to $\frac{3}{8}$" thick.

X Q. 232. In your answer to Q. 45 did you not overlook the guide leading from the stapling means to the step-mitering means.

A. No. I am advised that there were two distinct operations in which the rigid blank was moved by hand to the step mitering machine.

In the Rosback box blank which I saw when I made my investigation in 1906, the wires projected beyond the end of the blank and they were intended to be twisted together after the box was closed.

X Q. 235. Does the Rosback patent No. 608,917, Fig. 37, illustrate that blank?

By Mr. Janney: Subject to the circumstance that this witness is not skilled in reading mechanical drawings and [fol. 302] therefore his reply is not necessarily dependable, he may answer the question.

A. Fig. 37 illustrates a box ready to be packed and closed. The Rosback blanks, that is, the finished blank after the strips of wood have been step-mitered, that I saw, consisted of eight cleats, a continuous piece of sheet material and the binding wire. I cannot tell from this Fig. 37 whether it was intended to represent continuous sheet material around the corners or not. The actual blanks and boxes had it.

X Q. 236. With the portable workholder of the patent in suit a reversal of the feed mechanism will move the box materials backwards in exact formation or assembled relation, will it not?

A. I never saw the machines operate backward.

The 4-One box blank machines which we furnish and our licensees use, are intended to operate continuously, without stopping the machine after the making of each blank. On some types of machines we use means to prevent the driving of the staples in the spaces between blanks without stopping the machine at each blank, and on other types of machines we do not.

X Q. 239. In your answer to Q. 20, did you distinguish between the portable workholder used on the first two or three machines and the chain feed type which you now use?

A. The same statement is applicable to all of the types of machines that we have ever furnished.

X Q. 240. Please describe the method of fastening the heads or end walls in the 4-One box.

A. In some instances, the work is done by hand, using a hammer and small nails or tacks to hold the ends in place. In other instances nailing machines are used, driving nails from the inside of the box through the thin boards of the ends of the cleats; and other instances, end stapling machines are used, driving staples through the thin boards and into the cleats.

X Q. 241. How many people does it take to operate the 4-One blank machines?

A. What capacity do you want? What size boxes are you going to have them make? Many factors enter into the question as to the number of people. In most instances, there are three stock feeders (by "stock" I mean cleats and thin boards), one operator, and one off-bearer.

I do not know why the National Wire Bound Box Company of South Bend decided not to build or have made any more portable workholder machines. At the time I [fol. 363] first came in contact with the National Wire Bound Box Company they had already built the box-blank machines with the traveling heads and endless chain formers or workholders.

X Q. 243. You say you investigated the wirebound box industry in 1906. Is that correct?

A. Yes.

X Q. 244. And you found that there was a pending litigation brought by William P. Healy against Inwood & Lavenberg and National Wire Bound Box Company, Robinson et al., didn't you?

A. I can answer definitely as to the National Wire Bound Box Company. I don't know whether the others were mentioned or not.

X Q. 245. This litigation was brought by Healy to obtain title to the applications which afterwards matured into the patents involved in this present litigation, wasn't it?

A. I think so, and also to obtain title, as I remember, to all of the patents and applications the National Wire Bound Box Company thought they owned.

As a result of that litigation, Healy obtained such title, and the litigation terminated April 11, 1911.

It was during the pendency of that litigation that the National Wire Bound Box Company used the portable workholder machines and the traveling stapler machines. They also used the stationary head type of machines with the traveling intermittent step-by-step movement of the former chains or workholders very much as we have now. The first two types of machines were used up to about 1908 or 1909. The stationary head machines were used after that. Some of the stationary head machines furnished by us from 1909 to 1911 are still in use. We used those step-by-step chain-feed machines in defiance of what Healy regarded as his patent. Everything we did, according to the statement that Mr. Healy made to me, was in defiance of his rights. On the day of the termination of that litigation, April 11, 1911, Mr. Healy issued what we have called a contingent license to Wirebounds Corporation, this contingent license to become effective if and when a license issued to the Healy Box Company prior to that time should be terminated. The license to the Healy Box Company was terminated in October, 1913, and the contingent license, mentioned before, then became effective for all purposes. As to my relation to these licensee companies, I was vice-president of the Healy Box Company for a time and in October, 1913, when the contingent license to Wirebounds Corporation became effective, I was [fol. 304] president of Wirebounds Corporation.

X Q. 252. I now show you Craig patent 864,955, issued September 3, 1907, and ask if it is not one of the patents which was included in the license we've been discussing.

A. Yes. I think it was; I am not positively sure.

X Q. 253. And this Craig patent is one under which you are operating at the present time, isn't it?

A. I don't know.

X Q. 254. Didn't you get the impression when you were investigating his business in 1906, that the portable work-

holder machine and the traveling stapler machine were gotten up to avoid the claims of the patents which Healy got as a result of the litigation?

A. No.

X Q. 255. I had forgotten for a moment that you have testified that the machines had guides. And that the workholder patent and the machine patent in suit omitted guides. I will now ask you whether you did not get the impression if you were not actually told that the workholder patent and the machine patent in suit were gotten up so that there would be an apparent avoidance of the patents which Healy was claiming as his.

A. I gathered no such impression.

X Q. 256. Please answer my last question as if I had specified the Knudtson & Uhri patent 518,038, dated April 10, 1894.

A. I knew nothing of the patent referred to. My understanding was that the difference with Mr. Healy was a matter solely of the question of ownership and he claimed that Inwood & Lavenberg were his agents when they made their invention. I did not learn of or hear of any patents standing in the way of the machine development of the National Wire Bound Box Company or that the portable workholder machines used by the South Bend Healy Box Company had been built as they were built to avoid any patent that any one else might have.

X Q. 257. Do you know that Inwood & Lavenberg showed drawings like the one in the machine patent and workholder patent in suit to one Theodore Dalton of Washington and asked him for an opinion as to whether the machine as shown in those drawings did not infringe the Knudtson & Uhri patent above mentioned (and which was owned by Healy at that time) and that as a part of his opinion he said:

"The first element 'guides for the cleats' is not present in the machine manufactured or used by Mr. Inwood, because, as before stated, the table on which the former with [fol. 305] the box blank is placed has no guides whatever and the cleats are not guided through the machine mechanically. The intermittent feed mechanism for advancing the cleats longitudinally is used, inasmuch as the toothed feed-rollers are driven intermittently and they ad-

vanced the cleats longitudinally, immediately, through the advancement of the 'former' which engages with the teeth of the rollers, but there is no intermittent feed mechanism for advancing the cleats longitudinally in their guides, because there are no guides."

By Mr. Janney: Objected to as irrelevant and immaterial.

A. I do not. I do not recall ever having heard of the Dalton opinion referred to.

I do not remember ever asking advice of patent counsel as to whether our company was safe in using a machine having the workholder and having guides for guiding the workholder to the stapler.

X Q. 259. The machine with the portable workholder as used had guides—the patent leaves them out. Do you know why?

A. I do not.

I first met Inwood in 1906 and he was trying to find somebody that would somehow get the 4 One boxes that he had invented on the market. I don't remember when I first met Lavenberg.

X Q. 261. In your answers to Qs. 71, 72, etc., you mentioned a suit which your company brought against the Chicago Mill and Lumber Company at Chicago and in which an injunction was issued and the defendant took a license. What were the circumstances surrounding the taking of a license by the Chicago Mill and Lumber Company? Tell us all about it, please.

A. I will tell you all. You said off the record that we paid or were reported to have paid $300,000 to them. The only thing that we gave them that had any value and by "gave" I mean directly or indirectly, was a release for an accounting for past infringement. They took our standard license without any changes; the same license was granted as that taken by the other former licensees of the Greenstreet Company and as that held by our other licensees. They were beaten in a law suit and knew they were beaten and walked up to the captain's counter and settled. We were glad to have them become our licensees and are glad that they are still our licensees, but they did not receive

then nor have they received since any concessions of any [fol. 306] kind directly or indirectly that have not been offered to all of our licensees.

At the time of that litigation the Chicago Mill and Lumber Company had a license from the Greenstreet people. We also had an agreement with them. We bought all of the physical property that they had and all of the patents that they had, and paid them $250,000. I think this settlement was reached before Judge Sanborn handed down his opinion.

X Q. 267. It's true, isn't it, that Judge Sanborn was advised regarding the settlement whereby your company acquired all the Greenstreet patents with the understanding that the Chicago Mill and Lumber Company should take a license from your company before he handed down his decision in your case?

A. I do not know what advice was given to Judge Sanborn.

X Q. 268. Well, you know, don't you, that after the settlement was reached and before he handed down his opinion, counsel for both parties appeared before him and told him that a settlement had been reached?

A. I think he did. I handled the commercial end of our business, not the legal end. Mr. Janney was our attorney in that litigation.

By Mr. Janney: I know the circumstances surrounding the rendering of Judge Sanborn's decision. If defendant's counsel desires to have me do so, I will place the facts on record here and now.

By Mr. Cox: I shall be glad to have plaintiffs' counsel make such statement if he will also reply to questions that I ask on the subject.

By Mr. Janney: I am perfectly willing to answer any questions which defendant's counsel may ask pertinent to this subject-matter.

After voluminous testimony had been taken, and following a final argument before Judge Sanborn, which occupied at least an entire day and was participated in by C. C. Linthicum, Esq., and myself, for the plaintiffs, and Edward Rector, Esq., and Arthur M. Hood, Esq., for the de-

fendants, Judge Sanborn took the case under advisement.

Thereafter, the parties, largely independently of counsel, discussed the advisability of settlement. They were engaged in these discussions when Mr. Linthicum, located in Chicago, notified me, then located in Boston, that he had received word from Judge Sanborn's secretary that Judge Sanborn had prepared and was ready to file his opinion on [fol. 307] the merits of the suit.

The final argument before Judge Sanborn was in June, 1916. Some months thereafter, as I was then informed, officials of the Chicago Mill and Lumber Company approached officials of the plaintiffs and suggested that an attempt be made to negotiate a settlement and also suggested that Judge Sanborn be requested to withhold his opinion pending such negotiations. As a result of those suggestions, counsel for both parties, Mr. Rector for the defendant, and Mr. Linthicum for the plaintiffs, wrote a joint letter to Judge Sanborn informing him that negotiations were in progress and requesting him to withhold his opinion, at least temporarily. This joint letter was drafted and agreed to between Mr. Rector and Mr. Linthicum, both of whom were located in Chicago, and was submitted to me, then located in Boston. I approved the letter and it was sent to Judge Sanborn. I clearly remember having seen Judge Sanborn's reply to that letter and my best recollection of it is that his Honor said that he had been working on the case but that he would go no further pending further advices from Mr. Rector and Mr. Linthicum. I received word later from officials of the plaintiffs that the Chicago Mill and Lumber Company was not satisfactorily diligent in pursuing the negotiations and I was asked to approve of the retraction of the request previously made by the joint letter referred to, that Judge Sanborn withhold his opinion. I advised Mr. Linthicum of my approval and asked him to write Judge Sanborn accordingly. This Mr. Linthicum did, sending me a copy of his letter and also serving a copy thereof on Mr. Rector, as he advised me at the time. I cannot remember the exact dates of these letters, but do recall that the first letter was written some months after the final argument before Judge Sanborn, and the second letter, which retracted the first, was written within a very few weeks at the outside, follow-

ing the first letter. This second letter informed Judge Sanborn that the negotiations were not progressing satisfactorily, or to that general effect, and requested his Honor to proceed with the decision of the case.

In spite of that letter requesting Judge Sanborn to proceed with his decision, the negotiations with the parties continued, but without Judge Sanborn's knowledge as far as I know and according to the best of my information and be- [fol. 308] lief. It was during these negotiations that Mr. Linthicum telegraphed me from Chicago to Boston saying that he had just learned that Judge Sanborn had completed and written his opinion and was on the verge of filing it. Later, Mr. Linthicum notified me that he and either Mr. Rector or one of his partners had been before Judge Sanborn, had been notified that the opinion was ready, and had received the impression that the opinion found for the plaintiffs. I have been informed that the settlement between the parties had been reached and that Mr. Linthicum and Mr. Rector (or his partner) had appeared before Judge Sanborn, as a matter of courtesy, to notify his Honor of the fact; and that this notification was what called forth Judge Sanborn's statement that he had already actually completed and written the opinion. Further, my information is that the settlement between the parties was arrived at about 2 o'clock A. M. on April 23, 1916; that it was at 10 o'clock on that same morning that Mr. Linthicum and Mr. Rector (or his partner) went before Judge Sanborn, as already described.

I do not know why one month elapsed between that episode and the actual filing of Judge Sanborn's opinion.

I do know, however, from information supplied me directly by both Mr. Linthicum and Mr. Rector, that Judge Sanborn informed them that he had entirely completed and written his opinion and was ready to file it on the morning when Mr. Linthicum and the other counsel advised Judge Sanborn for the first time that the settlement had been reached. In other words, it is true beyond any possible question that Judge Sanborn had prepared and completed his opinion prior to the actual time the settlement was reached and prior to his first information that negotiations were still in progress in spite of plaintiffs' letter, sent to Judge Sanborn at least several weeks previously, with-

drawing the request that Judge Sanborn's opinion be delayed.

I have no reason whatever to suppose or to suspect that Judge Sanborn's opinion as actually filed was in the least degree influenced by any negotiations between the parties or request by any party or by anything except Judge Sanborn's own estimate of the merits of the litigation.

By Mr. Cox: The officials of the Chicago Mill and Lum- [fol. 309] ber Company were good and angry, were they not, when they found that you had written Judge Sanborn that you were now ready to go ahead with his opinion?

X Q. 269. To form straight edges on the veneer or sheets, the sheets must be cut that way before they are secured to the cleats, mustn't they? Any chance to do this afterwards, as in the Rosback method, will be prevented by the cutting of the wires?

A. I don't think so. I think a machine could be built that would cut straight edge sheets on the Rosback rigid blank. A shield would have to be provided of some character to protect the wire, but this would not in my judgment be a difficult thing to do.

X Q. 270. Do you think that that scheme could be carried out as a practical commercial matter?

A. Yes, I think it could.

Cross examination closed.

Rebuttal cross-examination of Guilford C. Babcock.

By Mr. Cox:

X Q. 79. The boxes which you made to represent the prior art were intended to show how bad the prior art structures were and not how good they were, weren't they?

A. No, on the contrary. There is one possible exception, that is in the Archer box. We made as good a box as it was possible to make, using single ply veneer, whereas two or three-ply veneer would have given a better box.

X Q. 80. You say "on the contrary." It would be to plaintiffs' advantage, wouldn't it, to show that these prior devices were bad instead of good?

A. I do not know whether it would or not. The prior devices all failed commercially and I do not think that

they could be made profitably, so that we certainly did the best we knew how in making the boxes.

By Mr. Janney: I have refrained from interposing this remark until after the witness completed his foregoing answer. Since I advised these tests and was present at the making of them and co-operated with the witness in formulating them, it is competent for me to say that it was [fol. 310] no part of our purpose to show inferiority, per se, in the tested boxes, except as that inferiority might appear as a defect in characteristic structure. Our purpose was best served by making each box as well and as strong as it could be made in the characteristic structure necessary to be represented. In this way, the tests would develop that, even under the most favorable circumstances, the prior art boxes were essentially different (whether superior or inferior) from plaintiffs' and defendant's boxes. This is exemplified in the case of the Archer box, the tests of which demonstrated that, up to a certain stage of deformation, the box was eminently superior in strength and rigidity to the Inwood and Lavenberg box, although, because of its fundamentally different construction, the Archer box, having first shown a rigidity and resistance to compression far exceeding that of the Inwood and Lavenberg box, presently failed altogether and went to pieces, while the Inwood and Lavenberg box continued, through a considerably greater deformation, to maintain a dependable and adequate resistance, stability and integrity.

Defendant's counsel should understand that the purposes of the test were to demonstrate differences in box structure and function, and not necessarily nor even importantly superiorities or inferiorities.

X Q. 81. What do you think the test on the Healy box demonstrated, counsel having already by his remarks on the record explained what the tests on the Archer box demonstrated?

By Mr. Janney: The boxes, records and graphs speak for themselves as to the results of the tests. What those results demonstrate is a matter of argument and conclusion. However, if defendant's counsel wishes the witness to state his conclusions in the premises, I have no objection.

Evidently, however, this would be beyond the scope of the direct examination and therefore improper cross-examination; and if defendant's counsel insists upon obtaining this witness' conclusions, he will thereby make the witness his own as to that subject-matter.

A. That the Healy box's failure is the failure of a nailed box.

In making the box to represent the Rosback box, the sheets were scored for producing the corner bend with a hand tool. The score was as near as it could possibly [fol. 311] be made, a sixteenth of an inch deep and a sixteenth of an inch wide.

I have no knowledge as to whether defendant has ever used or sold for others to use, any boxes without end walls.

X Q. 84. Then these structures which you have offered as representing defendant's structures without end walls are hypothetical as distinguished from representing something which the defendant has done?

A. If the defendant has not been making this type of box he has been missing an opportunity to get business and I suggest that he look for a new sales manager.

I think it would be practical for defendant's alternate cleated blank to be used without end walls for packaging cans and the like, but I have never seen it done.

There are at least two of our licensees that are using step-mitered cleats now as a part of their regular operation. I do not know the percentage of step-mitered cleats in proportion to the total, but a very small proportion of the business uses step-mitered cleats.

X Q. 90. You say in your answer to X Q. 80 that prior devices all failed commercially. You were the first man, were you not, who could qualify as really being a business man and having financial resources at your command who ever went into the wirebound box industry; isn't that so?

A. I think not.

X Q. 91. Well, at least you had adequate financial resources back of you, didn't you?

A. Sometimes they seemed so far back that I couldn't reach them, even by telegraph.

X Q. 92. Did you ever meet, or have any knowledge of Greenstreet, Rosback, Inwood and Lavenberg, Knudtson and Uhri?

By Mr. Janney: This is entirely improper cross-examination, having no relation whatever to the direct. If defendant's counsel persists in this fishing excursion, he makes the witness his own and I shall cross-examine him upon any of these subjects which are gone into.

By Mr. Cox: This is proper cross-examination. The witness has offered in evidence thirty or forty boxes as illustrating the prior art and has made the remark that all of them failed commercially, and it is my purpose to show, as I am informed that it is a fact, that Col. Babcock, the witness, and his associates, were the first men who could be properly characterized as business men and men of affairs [fol. 312] who attempted to make a commercial success of this wirebound box industry and the first who had sufficient resources to make commercial success possible—that the men who previously were working in the art such as those I mentioned and who were patentees, were men who had skill as workmen and mechanics but did not have the other qualifications and resources requisite to successfully launch a commercial business such as the plaintiffs have established.

It is therefore proper to have the witness admit, if he knows, that these facts are true.

By Mr. Janney: The fact is that defendant's counsel has been gravely misinformed in the particulars just referred to. But disregarding that fact, if defendant desired to offer proof upon these subjects it should have been done during the course of taking of defendant's testimony. This is no time to convert this witness into a defendant's witness for the purpose of trying to establish matters of general commercial history which have nothing to do with the witness' testimony on direct

By Mr. Cox: This is not the first time that this witness has testified to the commercial success of his own company and the lack of commercial success of prior devices and it is believed that it is perfectly proper cross-examination and this is the witness distinctly who properly should bring out the facts in this regard.

By Mr. Janney: It is a fact that this witness described the remarkable commercial success of the Inwood and Lavenberg box and indicated the commercial failure of the prior art boxes; but that was all done in this witness' deposition in plaintiffs' opening proofs and before defendant's proofs began. If defendant had any answer to that testi-

mony of the witness, it might have been developed on cross examination of the witness during his original deposition, and it certainly should have been developed on defendant's own proofs. I insist that this is no time to start a fishing excursion into the early history of the failure of the prior art boxes.

A. I do not recall having met Rosback, Knudtson or Uhri. I have met Greenstreet, Inwood and Lavenberg.

X Q. 93. Neither Greenstreet, Inwood nor Lavenberg at the time you knew them had the business ability nor financial resources to develop such a business as you have developed, had they?

[fol. 313] A. At the time that Mr. Greenstreet made his inventions on which he secured patents he was a trusted and highly thought of employee of Kingan and Company of Indianapolis, who are very large pork packers, rated then as having several millions of capital in the business, and Kingan and Company financed Mr. Greenstreet's operations. They certainly think that they had all the ability that we had and they know that they had more money.

Mr. Inwood was rich. I do not know just how much money he had but a part of his holdings was a building at South Bend that was sold during the latter time that I knew him for a little more than sixty thousand dollars. I have no knowledge of the financial resources of Mr. Lavenberg.

Col. Henry M. Stephens of Chicago, who had been a successfull box manufacturer here, become interested in what we have called the Rosback box and afterward he purchased the Howenstine patent. Col. Stephens endeavored to interest the box manufacturers in this district and elsewhere with his proposition but never succeeded. He had ample financial resources to handle the proposition and ample ability. The proposition failed because the boxes could not be made and sold commercially in competition with the boxes then on the market.

By Mr. Janney: I interrupt the witness long enough to note that the Col. Henry Stephens mentioned in the foregoing paragraph was a witness for plaintiffs in the original Chicago Mill & Lumber Company litigation, and his depo-

sition is a part of plaintiffs' rebuttal proof in the present case under stipulation.

(The witness continues:) Wm. P. Healy was, as I remember, according to the information given me by Mr. Healy, first interested in wirebound boxes by Col. Stephens. At the time I knew Mr. Healy his connection with Col. Stephens had been severed. Mr. Healy told me that he was worth several hundred thousand dollars at the time that he became interested in wirebound boxes. This is the Healy who at one time owned the patents here in suit.

The Rosback box proposition was thoroughly investigated by Mr. Herman Paepeke and his associates of the Chicago Mill & Lumber Company, which company admits that it is the largest box-making institution in the world, and turned it down because they did not think that they could make a commercial success of it. It was also investigated by Mr. [fol. 314] Benjamin F. Masters, president of Rathbone, Hair & Ridgeway Company and his associates. Rathbone, Hair & Ridgeway Company are one of the large box makers in the United States and stand second to the Chicago Mill & Lumber Company in the volume of business done in this district. Mr. Masters also turned down the Rosback box.

By Mr. Janney: It is noted that Mr. Benjamin F. Masters was a witness in the original Chicago Mill & Lumber Company litigation and his deposition is a part of plaintiffs' rebuttal proofs in the present case by stipulation.

(The witness continues:) In view of the fact that you state that you are informed that my associates and myself were the first men who could be properly characterized as business men and men of affairs who attempted to make a commercial success of this wirebound box industry and the first who had sufficient resources to make commercial success possible, I think that I should go further into the early history of this business——

By Mr. Cox (interrupting the witness): I have no desire to curtail the answer of the witness, but it may be noted that I inquired particularly about three men, Greenstreet, Inwood and Lavenberg, and not all the rich men who might have taken an interest in the industry.

(The witness continues:) The Rosback box, as previously stated, was not manufactured commercially, that is, the number of boxes made was very limited and not enough to really call the production a box business. Some of the best box makers in the country investigated the Rosback box and the machines for making it and turned the proposition down. Col. Stephens worked at this job for several years without success.

The Greenstreet box was made by Kingan and Company of Indianapalis, who had both business ability and financial resources; by the Defiance Box Company, Defiance, Ohio, that had business ability and financial resources; by the Consignee's Favorite Package Company of Chattanooga, Tennessee, which was a subsidiary company of the Pattens of Wine of Cardui fame. Mr. Patten would admit having business ability and financial resources. In addition to these, the firms supplied by Saranac Machine Company with machine for making Greenstreet boxes were Guile and [fol. 315] Windnagle of Penn Yan, New York; Forrester Nace Box Company of Kansas City, Missouri, and also the Queen City Box Company of Cincinnati, Ohio, who made Greenstreet boxes and quit. It may be noted that the president of the Queen City Box Company at Cincinnati is W. G. Sexton, at one time president of the National Association of Box Manufacturers. All of these concerns had business ability and financial resources and all stopped making the Greenstreet box because they did not find its manufacture profitable. The Healy box of P. J. Healy was made by him at East St. Louis, Illinois, where he is the superintendent of the box shop of Armour & Company, which position he has held for thirty years. Armour & Company seem to me to have business ability and financial resources and Mr. Healy did his best to interest his employers in his box.

The Archer box was never made in this country, as far as I know.

It seems to me that all these attempts to successfully make and market reinforced boxes—all of which failed—failed not because of lack of business ability or financial resources on the part of those interested, but because they did not have the box or a machine or method that could be profitably used.

X Q. 94. In order for a wirebound box machine to be a commercial success it is necessary to have a high-speed stapler, is it not? For example, a stapler which will drive sixty staples per minute, or more?

A. Yes, if the manufacturer is to be in a position to compete with other manufacturers of wirebound boxes.

X Q. 95. Do you know of the existence of any staplers suitable to wirebound boxes that would run at this speed of sixty a minute or more as far back as 1904 or 1905?

A. I was not in the business until late in 1906.

X Q. 96. And you were able to get staplers that would drive as fast as this at that time?

A. As I remember, the box-blank machines furnished by the National Wirebound Box Company were built to operate at eighty revolutions per minute in 1907.

X Q. 97. Do you know how much earlier than this staplers capable of running at sixty or more per minute were obtainable?

A. I do not know.

Cross-examination closed.

[fol. 316] Defendant's counsel also offers in evidence under the previous stipulation of May 19, 1925, certain parts of the deposition of plaintiffs' expert, ARTHUR S. BROWNE, in the aforesaid Gibbons Chicago suit. This commences on page 154 of the Gibbons record, and was offered as part of plaintiffs' prima facie case.

Cross-examination of Arthur S. Browne:

X Q. 46. Mr. Browne, please refer first to what we may term the "machine patent" 1,128,145, which is entitled "means for making box blank." The language of claim 25 of that patent is not clear to me and I would be glad if you would apply the elements to the machine.

A. This claim recites a machine for making box-blanks comprising the following features and characteristics:

A. "work controlling means having cleat positioning means to receive sectional cleats in parallel lines."

The work controlling means comprises the carriage or for-

mer 54, and cleat positioning means consists of the channelled side bars 55.

B. "spacing means to space cleats endwise from each other in each line, preparatory to connecting said cleats in their spaced relation."

The spacing means consists of the blocks 56.

C. the claim then says that the work controlling means is "arranged to receive side materials to be secured to said cleats."

That is to say, the work controlling means is of such character that the side sheets are placed above the cleats and are retained in position thereon. The specific instrumentalities for this purpose are shown at 12 and 14 in the companion patent No. 1,128,144.

D. "fastener applying means for securing binding means to the side material and cleats controlled by the work controlling means."

The fastener applying means consists of the staplers 8 and I should also include the wire reels and guides as part of this means since the wires themselves are designated as the "binding means."

[fol. 317] E. "means for relatively feeding the work controlling means and fastener applying mechanism for securing said binding means across the intervals between said space of cleats to secure them together in their spaced relation to form a foldable blank."

This refers to the feeding means comprising the feed rolls 38 and the drive mechanism therefor. This feed mechanism causes a relative feed between the work controlling means 54 on the one hand and the fastener applying mechanism 8 on the other.

That is to say, I understand this recitation of the claim to be the same as though the word "relatively" should be transposed to a position after the words "controlling means" so that the meaning is the same as though this recitation read: "means for feeding the work controlling means relatively to the fastener applying mechanism."

X Q. 47. Just how is this relative feeding accomplished?

There is no connection, is there, between the advancing workholder and the staplers except through the binding wires?

A. In the illustrated mechanism of the patent, the work controlling means is fed by the driven feed rolls 38 engaging the racks at the bottom of the work controlling carriage so that in the machine illustrated the work controlling means is fed past the fastener applying means.

I infer that the claim refers to the feed as being relative between the carriage 54 and the staplers 8 with the idea in mind that a machine might be organized in such a way that the work controlling means should remain stationary and the stapler carriage be fed along over the blank.

Those would be equivalent constructions as far as the feed is concerned.

X Q. 49. I would be glad if you would make the same elucidation of claim 46 in the same patent.

A. Claim 46 recites a machine for making box blanks comprising, in combination, three features, namely:

A. "work controlling means constructed and arranged to position a plurality of box sections in co-operative foldable relationship."

This is the carriage 54 with the channeled bars 55 and blocks 56.

[fol. 318] B. "fastener applying mechanism for connecting the adjacent box sections."

This is the staplers 8 and the wire reels and guides 51 and 52.

C. "means for relatively positioning one of said box sections and said fastener applying mechanism for applying a fastener in the desired relation to an edge of said section."

This has reference to the handle 44 by means of which the attendant may feed the work controlling carriage ahead irrespective of the automatic feed of the machine. This, when manipulated, acts to turn the wheel 39 ahead, thereby rotating the feed rolls 38 and hence advancing the work controlling means which engages the feed roll by means of its rack teeth.

Here again the claim contemplates a relative feed between the box blank and the staplers having in view the

possibility that the hand control might act to move the stapler carrier with respect to the box blank as well as the movement of the box blank relatively to the staplers.

X Q. 50. Why does the claim recite "for relatively positioning one of said box sections"?

A. I judge that it was in the mind of the claim writer that it might suffice to bring the leading edge of the first side of the box into the desired position relatively to the staples so that the first staples driven would have the desired position with respect to the leading edge of the first box side; and that thereafter, the correct relation between the remaining edges of the box sides and the staples might be taken care of by the automatic feed. If this should be the organization of the machine, then it would suffice to position only a single box section relatively to the staplers by means of the hand controlling feed lever. On the other hand, this chosen language would fit the situation even if the hand control had to be employed in connection with all four box sections.

X Q. 51. What do you include in these words "means for relatively feeding," etc., in those claims 25 and 46?

A. The feeding means of claim 25 would include the connection from the main drive shaft to the shaft on which ratchet wheel 39 is located; the two feed rolls 38; and the rack teeth on the under side of the carriage 54. The feed of claim 46 would include the handle 44; the ratchet wheel 39; the connections between the handle 44 and the ratchet 39; and the shaft on which the ratchet wheel 39 is located; [fol. 319] the feed roll 38 shown in Fig. 1; and the rack teeth on the under side of the carriage 54.

X Q. 52. In your answer to X Q. 46, you say the side sheets are retained in position on the cleats and then you refer to the companion patent No. 1,128,144 to show the instrumentalities for the purpose. What, if any, are the instrumentalities in this machine patent which we are discussing?

A. The machine patent does not illustrate in the drawings the parts shown at 12 and 14 in the companion patent No. 1,128,144; but the machine patent, beginning at line 107 of page 2, says:

"The former or carriage, although forming the subject-matter of a co-temporaneous application filed October 14th, 1904, Serial No. 228,443, will be described briefly," etc.

This identified contemporaneous application is the one upon which patent No. 1,128,144 was granted.

Accordingly, I understand that the companion patent is made a part of the disclosure by the reference to the application therefor in the specification of the machine patent.

X Q. 53. That's the only reference, isn't it, in the machine patent, either in the drawing or description?

A. Yes.

X Q. 54. I'm going to ask you, Mr. Browne, to make the same kind of an application of claim 58.

A. Claim 58 recites a machine for making box blanks comprising the following features:

A. "work positioning means to receive a succession of cleats."

This is the carriage 54 with its channeled bars 55.

B. "fastener applying means for securing binding means to said cleats."

This is the staplers 8 and the wire reels and guides 51 and 52.

C. "means for feeding said cleats relatively past the fastener applying means."

This is the feed means including the feed rolls 38, the racks under the carriage 55 and the automatic connections for moving the feed rolls.

[fol. 320] D. "means to predetermine successive spaces between the ends of cleats for a box blank, over which spaces the binding means is secured."

This has reference to the blocks 56.

E. "means for producing lengths of unattached wire beyond the ends of rear cleats for a blank preparatory to securing binding means to the next following blank"

This has reference to the feed roll 38 which is located on the discharge side of the staplers, this being the feed roll shown in Figs. 2 and 3 of the drawings. This feed roll is located sufficiently beyond the staplers so as to feed the blank carriage beyond the stapling point so that sufficient lengths of unattached wire are drawn from the reels to provide enough of the binding wires beyond the rear of the

blank to serve for being twisted with the wires at the front to enable the completed box to be closed and fastened.

There is nothing either illustrated or described to prevent the continued action of the staplers during this plus movement of the carriage or workholder just described.

If the machine be constructed as illustrated and described in the machine patent, and an attendant should come along with a fresh workholder and cause its rack teeth to engage the teeth of the first feed roller 38 as soon as the preceding workholder had advanced far enough to permit it, there would then be no wire left for twisting.

X Q. 57. In this machine patent no means are shown or described for guiding the workholder, are there?

A. No.

X Q. 58. Please refer to Figure 1; no means are shown for preventing the sheets from slipping off at the rear end of the workholder, are there?

A. No. I understand, however, from the reference in the specification to the contemporaneous application upon which patent No. 1,128,144 was granted that the contrivances shown at 12 and 14 in such companion patent are to be employed.

X Q. 59. As far as I can see, this machine patent doesn't show any means for preventing the sheets from slipping sidewise either. What is your view?

A. The work control carriage 54 is shown only in perspective in Fig. 1 of the drawings and, as the specification at page 2, line 11, says, it is only "described briefly," reference being made to the co-pending application upon [fol. 321] which patent No. 1,128,144 was granted for further particulars.

The specification at page 3, line 10, says that "the sheet B may be composed of separate pieces suitably clamped upon the cleats preparatory to being secured thereto."

Patent No. 1,128,144, granted on the co-pending application, shows a clamping bar 14 and also side stops 16 to hold the side sheets against movement transversely of the cleats.

So, while Fig. 1 of the drawings of the machine patent does not show any means at all for keeping the side sheets in place, nevertheless, I understand that the reference to the co-pending application is a sufficient disclosure of adequate means to maintain the side sheets in place.

By Mr. Cox: The last assumption of the witness must be objected to as a mere conclusion.

X Q. 60. Taking the machine just as it is shown with no means for guiding the carriage and no means shown for holding the sheets in place, you wouldn't regard the machine as an actual operating structure, would you, or one that you would recommend to a user just as it is?

A. I presume you mean "as shown" to have reference solely to the drawing.

If there were no means for maintaining the side sheets in place, then the machine would be inoperative. I do not think, however, that this criticism based upon the drawings is sound because the specification concededly states that only a brief description is given and reference is made to the complete disclosure of a co-pending application for the details of the work controlling means.

The absence of the guides for the work-controlling carriage would not render the machine inoperative but would require care on the part of the workmen.

I should regard, however, the addition of the guides (if their need were felt) as falling within the expected skill of the journeyman mechanic.

X Q. 61. Do you think the need of such guides would be felt in practice?

A. Yes, in order to insure accuracy and rapidity in the operation.

X Q. 62. I understand that there is a great back pull on the work-feeding means due to the drag of the binding wires and as I have observed the operation of a wire-bound box machine, I would say that is notably true. Do you think so too?

A. Yes.

[fol. 322] X Q. 63. Can you give us any idea in pounds what this would equal in a blank employing three wires of a diameter suitable for boxes of the size of soap boxes or fruit boxes, for example?

A. No. It is noticeable.

X Q. 64. Do you think a workman could push the work-holder through the machine; that is, as a practical operative matter?

A. I do not know whether he could or not. I have never made any tests or observations to enable me to express an opinion one way or another.

X Q. 65. Well, I was present when you saw defendant's machine operate and I don't think any of us would apply for the job of pushing a workholder through any such machine as shown in this patent we are discussing, would we?

A. No. I can only answer for myself. I should not apply for the job.

X Q. 66. Does this machine patent show any means for keeping the workholder down in engagement with the feed rollers 38?

A. No.

X Q. 67. All of the claims of this machine patent 1,128,145 are for a machine for making box blanks, are they not?

A. All of the claims in terms specify a machine for making box blanks excepting claim 19 which calls for a "machine for the purpose specified," and even this claim subsequently refers to a blank but without identifying it as a box blank. I should say, however, that even claim 19 is directed to a machine for making box blanks.

Also, claims 1, 2, 15 and 16 do not refer to a "machine" but do refer to "means" for making box blanks, but the "means" specified in these four claims do constitute a machine.

X Q. 68. Well, the machine won't make anything but box blanks, will it?

A. That is all.

X Q. 69. At any rate, whether such a type of machine is applicable to other products or not, it will not make finished boxes, will it?

A. No.

X Q. 70. And while on this subject, it may be observed that all four of the patents in suit are concerned with box blanks as distinguished from completed boxes, are they not—and this in spite of the fact that the reissue patent No. 12,725 is entitled as being for a "box"?

A. I answer in the affirmative so far as the machine [fol. 323] patent and the carriage and former patent are concerned.

I also answer in the affirmative so far as the claims of the box patent are concerned, although the drawings of

this patent show a completed box and the specification describes how a completed box is made.

The method patent has two groups of claims directed respectively to the making of wirebound boxes and to the making of box blanks.

X Q. 71. Did you ever see a portable workholder anything like the one shown in the patent in suit?

A. No.

X Q. 72. In the original application for one of these patents in suit, the inventors made a statement to the effect that wirebound box-making machinery was known in which the work was fed to the staples along stationary guides and stated—I don't recall the language—that there was an advantage in having a portable workholder in that a number of them could be employed which could be loaded by different groups of workmen and then brought to the machine. The idea was that the work could be expedited by having a number of these portable workholders being loaded simultaneously and then brought to the machine one at a time, thus enabling more work to be put through the machine in a given time. Assuming that I am approximately correct in my recollection, do you think it does or does not increase the capacity of the machine to use such portable workholders?

A. I do not know. I have had no experience upon which I can base a comparison and I have never observed a machine having removable and replaceable workholders in competition with a machine having endless chains.

X Q. 73. It is a fact, isn't it, that you never saw a wirebound box-making machine with any kind of a portable workholder?

A. Yes, that is true. When I first became acquainted with machines for making wirebound boxes, which was about eight years ago, the machines were equipped with permanent endless traveling chains to feed the blank materials along.

X Q. 74. In your testimony this morning you have several times in explaining the machine patent 1,128,145 referred to the workholder patent 1,128,144 for detail and in your direct examination, section 8, you say that these two patents together with the one covering the method "are closely related." It would be proper to go further

than this, wouldn't it, and say that as far as the illustrated machines go, the machine patent and the work-[fol. 324] holder patent are parts of one and the same machine and that if it hadn't been for the Patent Office rules requiring divis'on, all of the claims might properly have gone in a single patent.

A. Yes.

X Q. 75. In section 13 of your direct testimony you quote a paragraph from the machine patent commencing at page 3, line 106, where the inventors say:

"We wish it to be understood that this invention is not to be limited to the use of removable carriages or formers such as described, and which are in the nature of adjuncts applicable to the wire-feeding and stitching machine. Any means for positioning the separate parts of the blank material in proper relation, as broadly defined in the claims, may be substituted for the formers, or carriages, described whether removable from and replaceable in the machine, or otherwise."

Do you think it would have been an obvious change or within the expected skill of a "journeyman mechanic" (as you say) to have done away with a portable workholder and to have so designed the machine that the work was fed along in stationary guides by endless chain mechanism?

A. Yes.

X Q. 76. A journeyman machinist knowing that endless chain feeds were old in this and many other arts, could have readily made the changes, couldn't he?

A. Yes.

X Q. 77. And if the change was obvious in one direction, it was obvious in the other, wasn't it?

A. I think not.

X Q. 78. Will you explain why?

A. The first proposition assumes that the journeyman mechanic was familiar both with the mechanism shown in the machine patent in suit and also with machines having endless conveyor chains. Accordingly, the only problem before him would be the utilization of the characteristic feature of the patent in suit involved in positioning and feeding the cleats and side sheets in the endless chain machine.

In the second instance, however, he would have only the theretofore known machine before him and he would have no information at all regarding either the removable and replaceable workholders or of any means for positioning, maintaining and feeding individual cleats and individual side sheets.

[fol. 325] X Q. 79. Then we may say that having the machine patent and the workholder patent before him and knowing that a chain feed mechanism was a common mechanical expedient, this suggestion which we have quoted from the patent would be abundant to enable the journeyman mechanic to use stationary guides and endless chains for feeding it, but that the thing beyond the expected skill of a journeyman mechanic would be the conceiving of the idea that he could make the work-feeding means portable so that he could have a number of them being loaded at once in different parts of the shop preparatory to bringing them to the stapling mechanism. Is that statement substantially correct?

A. Yes, so far as it goes. Additionally, he would have the problem of finding out how to position, maintain and feed individual cleats and individual side sheets.

X Q. 80. Stationary guides would attend to positioning the material laterally and the positioning of them longitudinally, therefore, is the only element left in that connection; isn't that so?

A. Yes, and also maintaining the individual side sheets in proper position relatively to the cleats.

X Q. 81. Referring now to the drawings which you have submitted as illustrating the principle of defendant's machine:

The cleats travel in horizontal guides, don't they, which are stationary and hold the cleats at the proper distance apart while they are being fed forward to the stapling mechanism?

A. Yes.

X Q. 82. And the machine has endless chains equipped with members, which I shall call pusher lugs?

A. Yes.

X Q. 83. And these pusher lugs or pushers are of two types, one adapted to push sheets only, and the other to push cleats and sheets?

A. Yes.

X Q. 84. In operating the machine, the operators lay the cleats in the guide and the pushers come along and push them forward along the stationary guide towards the staplers?

A. Yes.

X Q. 85. In thus pushing the sheets and cleats forward, the pushers have to overcome the resistance due to the friction of the sheets and cleats upon their supporting element?

A. Yes.

X Q. 86. In a given blank, each alternate cleat on a [fol. 326] side is omitted in accordance with the teachings of the Craig patent?

A. Yes.

X Q. 87. It is the friction of the sheets and cleats which keep them in contact with their pushing element, isn't it?

A. Yes, and after the stapling begins, the drag of the wires is also a contributing factor.

X Q. 88. The thickness, fore and aft, of the cleat pushers has nothing to do with the distance endwise between two successive cleats, has it; in other words, the lugs which push the cleats could be two or three times as thick, or half as thick, without altering the distance between two successive cleats in the same guide?

A. No, to the first sentence of the question. Yes, answer to the second sentence of the question.

X Q. 89. In defendant's machine, there is nothing to prevent, is there, the cleats being slid forward out of engagement with their pusher lugs?

A. No.

X Q. 90. In your direct testimony, you state that in the plaintiffs' patents the cleats are arranged "end to end" in the channels and state that the same is true in defendant's machine. You don't mean this as to defendant's machine, do you, where two successive cleats are separated longitudinally by a distance at least equal to the length of a cleat?

A. In the machine of the Inwood & Lavenberg patent the cleats on each side are arranged end to end in the sense that they are arranged in line with each other in single file. This is the sense in which I intended to refer in connection with defendant's machine.

In neither machine are the ends of any of the cleats in contact with each other.

In defendant's machine, it is true that the two cleats for a single blank at each side of the machine are separated from each other to an extent greater than the length of the cleat which is to be between them in the finished box.

X Q. 91. In your direct, Q. 44, section C, you say that the cleat pushers are adjustable relatively to each other to suit individual cleats of different lengths to be received in the positioning channel. You mention these as being similar characteristics with plaintiff and defendant. Did you intend to point this out as a characteristic of novelty?

A. I referred to this feature of adjustability as being one of the characteristics of the carriage and former described [fol. 327] in patent No. 1,128,144. I did not have in mind the novelty of this feature by itself.

X Q. 92. In defendant's machine, how many cleat pushers are there for each entire box-blank?

A. Four altogether, two on each side.

X Q. 93. How many in plaintiffs' patent?

A. Eight, four on each side.

X Q. 94. In the Chicago Mill & Lumber case, regarding which you testified, the defendant had cleats on each and every section of the blank, didn't it—eight cleats in all?

A. Yes.

X Q. 95. And some of the cleats terminated short of edges of the sheets, didn't they?

A. Yes.

X Q. 96. Was that latter characteristic true in the defendant's case when you visited them in Chicago last summer?

A. No.

X Q. 97. Referring now to plaintiffs' reissued patent 1,725, it says, commencing line 53, page 1:

"It may appear from the drawing that difficulty would be experienced in folding the sections owing to the edges of the sheets abutting, and the same being held in that relative position and against movement away from each other by the reinforcing wires. It is found in practice, however, the sheets being of soft wood veneering, that in folding over one section on the other, the reinforcing wire

will cut into the sharp edges of the sheets, as shown at 6 in Fig. 4, and the end of one sheet will crush the inner edge of the adjoining sheet sufficiently, as at 7, Fig. 4, so as to allow same to pass each other, and fold over so as to form overlapping edges or joints."

In the drawing of this patent, e. g., Figure 3, the sheets of veneer are shown to be practically in contact with each other. There would be no such action, would there, if the sheets were placed as far apart as the thickness of the sheet?

A. No.

X Q. 98. It's true, isn't it, in defendant's machine, as you saw it, and as you have illustrated it, there are spacers E, which come between each pair of sheets and hold them at a distance apart fully equal to the thickness of the sheets?

A. My observation of the defendant's boxes which I examined at defendant's factory was that the wires in the [fol. 328] completed boxes were embedded in or sunk into the edges of the sheets.

I do not recall observing whether or not the thickness of the sheets was the same as the fore and aft thickness of the sheet pushers E, as the same are designated on Plaintiffs' Exhibit Drawing of Defendant's Machine. Judging from Plaintiffs' Exhibit Drawing of Defendant's Machine, there is not much, if any, difference.

X Q. 99. The method patent also shows the veneer sheets practically touching, does it not? In fact, there is nothing to prevent them from actually touching. This is true, is it not?

A. Yes.

X Q. 100. Not any of plaintiffs' patents in suit have anything inserted between the approximate edges of the sheets?

A. No.

X Q. 101. The cleats, however, have inserted elements which positively limit the distance to which the proximate ends can approach each other?

A. Yes.

I saw a box just like that illustrated in the patents in suit, with the ends of the cleats step-mitered, at the time I testified in the Chicago Mill & Lumber suit, in Chicago.

X Q. 104. Suppose all of the cleats were fastened first to the heads or end walls of the box and no cleats were fastened to the blank, would that be within the teachings of the patents in suit, especially the method patent?

By Mr. Janney: Objected to as not stating enough conditions to produce any result. If counsel desires the witness to deal with an hypothetical method, the method should be described in full.

A. No.

X Q. 105. Assume a construction in which wires were stapled to four sheets or box sides, without any cleats, very much in the manner in which the Craig patent shows the wires stapled to the sheets, where the cleats are absent, and then assume that there are wrapped around and finally secured to end walls of any known type, for example, such as the nailed packing box with the thick ends, would that be within the teachings of the method patent?

By Mr. Janney: Objected to as an inadequate statement of a hypothetical method. The manner in which the side sheets are "finally secured to end walls" would be obviously [fol. 329] material, and some manner should be specified in stating the hypothetical method.

By Mr. Cox: In view of Mr. Janney's objection, please assume that the box sides are nailed to the end walls; also assume that they are stapled to the end walls.

By Mr. Janney: I take it from Mr. Cox's most recent statement that he is now proposing two hypothetical methods, one employing nails to secure the side sheets to the end walls, and the second employing staples for that same purpose. Even this statement of the second hypothetical method, at least, seems inadequate unless it is made clear whether or not the assumed staples have any relationship to the binding wires.

I note still another insufficiency in the statement of the hypothetical methods. The character of the assumed end wall should be defined—e. g., whether they are thick and rigid, whether they are cleated; whether, if cleated, the cleats, under stresses, function mainly as elements of a substantial rigid end or as elements of the side staples to which respectively the cleats pertain. Any hypothetical

method presented for the witness' consideration should be described fully and definitely in all these particulars, else there is a serious risk that cross-examining counsel and the witness will fail to understand each other.

Furthermore, it is suggested that the witness should be asked to compare any hypothetical method with only one at a time of the patents in suit. The question requiring a consideration of all four patents at once, has so many aspects that it really amounts to several distinct questions in one.

By Mr. Cox: The bill of complaint alleges conjoint use and therefore if properly joined the defendant can be charged only with infringement of different aspects of a common underlying idea. Defendant's counsel didn't know that the witness' answer would depend upon so many factors, and it is suggested that the witness make what attempt he can to answer the question and he can certainly do something with it.

A. No. I do not wish, however, to be understood as expressing any opinion regarding the possible scope to be given to any of the claims of plaintiffs' patents, because that seems to be outside of my province as a witness.

I have not applied any of plaintiffs' claims to defendant's machine or box, or stated what specific claims were infringed.

[fol. 330] X Q. 107. The forming of individual cleats is done as a separate operation from uniting the cleat material to the side sheet material, whether done beforehand or afterwards; isn't that so?

A. Yes.

By Mr. Janney: I feel obliged to note that if defendant's counsel intended by "the forming of individual cleats * * * afterwards," to suggest the Rosback system of making one type of wirebound box, then the witness' answer is obviously inapplicable, because it is quite evident from the disclosure of the Rosback patents that the operation of "forming of individual cleats" is one of the essential and final steps in the making of the box blank itself, and is not separate from the blank making method.

In my direct testimony, I stated that there is an advantage in relative shifting of the veneer sheets lengthwise of the edges in a completed loaded box. This advantage in-

heres in a tongue and groove cleat construction like that used by defendant. This proposition was fully gone into by myself at the time of the suit against the Chicago Mill & Lumber Company, at which time tongue and groove connections were under consideration. With the tongue and groove connections, there is some initial strength given by it against distortion of the box, but in case of a considerable strain, the tongue and groove connection breaks and leaves the box in a condition in which the side sheets slide longitudinally on each other and the tension of the wires is brought into play in order to withstand such destructive deformation as would render the box inefficient as a carrier.

I visited this defendant's factory on July 28th and August 2nd, 1922.

To briefly describe plaintiffs' present commercial machine, especially with reference to the means for guiding and feeding the work toward the staplers, the box blank materials are fed by two travelling endless chains. Each chain is equipped with several sets of cleats and sheet pushers. Each chain has four pushers for four cleats in each set. Likewise, there are four pushers for the four sheets.

As the cleats and sheets are fed along, the sheets pass under a presser, which maintains the sheets in the proper plane relatively to the underlying cleats.

The stapling mechanism is such that staples are not formed and expelled in case there is no material to be stapled.

[fol. 331] I am somewhat uncertain as to the wire cut-off. I should say from recollection that I have seen plaintiffs' machines which had an automatic wire cut-off and others which did not have, the wires being cut by a workman.

X Q. 111. So far as the means for supporting and positioning and advancing the sheets and cleats are concerned, Craig patent 864,955 makes a substantially correct showing of plaintiffs' commercial machine, doesn't it?

A. Generally speaking, I say "Yes." I have never made a side-by-side comparison between the Craig patent and any one of the plaintiffs' machines, so that details of construction may be different, but this machine of this Craig patent is in principle like that of the plaintiffs' machine.

In plaintiffs' commercial machine, it is my recollection that the sheets and cleats rest upon the feed chains. The chains travel in stationary guides, and there is no friction or contact of either the sheets or the cleats with the stationary guides. The chains alone positively hold the sheets and cleats and position them laterally and longitudinally as well as supporting them, although I wish to make one possible qualification. While my recollection is indistinct, I am under the impression that in some of the plaintiffs' machines which I have seen, there are intermediate stationary supports over which the sheets pass, these supports being located between the chains and they prevent the sagging of the middle of the sheets under the weight of an overlying presser."

Messrs. Babcock, Murphy and Dinnie of plaintiffs' organization are here present and have been during my cross-examination.

X Q. 117. In a discussion with them this morning, I understand that Thompson reissued patent No. 15,045, reissued February 15, 1921, is a substantially correct representation of plaintiffs' present commercial machine. Would you mind asking these gentlemen now if that is correct?

A. I have not, as I recall, examined this Thompson patent, but I have asked Mr. Babcock regarding it and he says that the work controlling feeding and spacing chains of this Thompson patent are in all substantial respects like those used on the standard machines of the plaintiffs' manufacture.

There are spacer blocks which intervene between and limit the mutual approach of two adjacent cleats on the same line.

In the portable-workholder patent, and in the method [fol. 332] patent in suit, the spacer blocks themselves do not carry the entire weight of the cleats. I understand that the cleats rest upon bed plate 5 which is best shown in Figs. 2 and 4 of the carriage patent 1,128,144, and this is what the specification of this patent says at page 1, lines 84 to 90, which I quote as follows:

"The longitudinal bars or plates are provided with dovetailed grooves 3, and side flanges 4 extending above the face of the bed plate 5, upon which the box cleats rest, the flanges 4 serving to position the cleats against lateral displacement."

Fig. 5 in the carriage patent and also the same figure in the method patent is apt to give a wrong impression until it is borne in mind that the section in which this figure is taken is in a plane which passes through and along one of the dovetailed grooves 3. It will be noted that the numeral 3 designating one of these grooves appears on Fig. 5 of each of these patents. Figs. 5 of the workholder and method patents show the cleats in actual end contact with the spacer blocks at both ends, but these figures illustrate an ideal condition, which is rarely attained in practice. Practically, some tolerance is necessarily allowed in the length of the cleats and the spacer blocks must be spaced apart sufficiently far to permit the insertion of the longest permissible cleat. A cleat shorter than the longest one but still admissible in the construction of the box would touch only one of the spacer blocks.

I do not know what figure or figures were originally on the lower portion of sheet 2 of the method patent in suit. The machine of the machine patent in suit is not equipped with any wire cutter for cutting the wires between blanks. The cutting is done by the workman with a pair of shears. To explain the meaning of the term "non-adjacent sides," as used in claims 39 and 40 of the carriage patent and claims 61, 63 and 66 of the machine patent, for example, I will use claim 63 as an illustration. This claim specifies "work-controlling means to receive a plurality of pairs of cleats disposed substantially end to end and pertaining to non-adjacent sides of the intended box." I understand this to mean that there are two pairs of cleats. That is to say, a pair of cleats on each end of the box. Each pair of cleats is disposed end to end, that is to say, in line with each other in single file. Each pair of cleats pertains to non-adjacent sides of the intended box. That is to say, with a given pair of cleats, they do not belong to neighboring sides of the box. [fol. 333] Calling the box sides 1, 2, 3 and 4, the pair of cleats would not be on 1 and 2, nor on 2 and 3, nor on 3 and 4. But they might be on sides 1 and 3 or on sides 2 and 4. Sides 1 and 3 are not adjacent to each other, nor are sides 2 and 4 adjacent to each other.

The idea seems to be that it suffices to apply two pairs of cleats only to a box blank.

In the patents in suit, the veneer or sheet material overhangs both ends of each and every one of the eight cleats

on the blank, and this is true before the blank is folded.

X Q. 126. In any of the patents in suit, is there any means shown excepting the holding rod 14 of the method patent for preventing the sheets from being displaced longitudinally of the carriage?

A. The longitudinal displacement of the sheets is prevented by the pivot arms 12, which carry the rod 14. It is these arms 12 rather than the rod 14 that prevents longitudinal displacement of the sheets.

In commercial practice, it frequently happens that more than one piece of veneer is used for making a single side of the box.

X Q. 128. In the patents in suit, if these individual pieces were not accurately cut (and you say accuracy is an ideal seldom obtained in practice), is there any means for preventing the inaccuracies from accumulating so that one end of the blank or the other, there would be considerable discrepancy?

A. There might be.

X Q. 129. In any of plaintiffs' machines which you have seen, were there automatic means for cutting the binding wires between blanks?

A. That is my present recollection. When I last visited a box factory in Chicago which had several of the plaintiffs' machines, I did not pay any attention to wire cutting, and, so far as I recall, did not make any observations of it. At the time that I was engaged in the litigation against the Chicago Mill & Lumber Company some seven or eight years ago, I examined the plaintiffs' machines in operation, and I should say from my recollection that some of the machines at least had the automatic cutters. As the cutting, however, was not involved in that litigation, I gave but casual attention to this feature of the machine and can only speak as a matter of general impression.

X Q. 130. Have you seen any of plaintiffs' machines which were equipped with automatic means for preventing the driving of staples between blanks?

[fol. 334] A. Yes. Or at least I noted that the staples were not ejected from the staplers during the gap between successive blanks. I did not examine the stapler mechanism in detail, but assume from witnessing the operation

that there was present some arrangement to prevent the unnecessary ejection of the staples.

X Q. 131. Can you mention any patent?

A. I have not looked up the plaintiffs' patents on this, but I have spoken to Mr. Dunne, here present, and he says that plaintiff has several patents on this subject, but he doesn't think that any patent shows the specific construction used commercially.

X Q. 132. In the plaintiffs' machine referred to, was there any preliminary feed—hand feed?

A. I think so. I do not definitely recall.

X Q. 133. Will you refer to the machine patent and explain lines 117 to 127 of page 3?

A. The passage referred to reads as follows:

"In operating the apparatus shown and described, the carriages or formers may be fed into the machine one after the other in a manner to obviate the necessity of stopping the machine after each blank is stitched. In this way, an endless chain of cleat and sheet holders and positioners, with the material thereon, may be caused to pass between the bedframe and stapling devices, and keep the machine working to its fullest capacity."

I do not know that I can say more than that I understand this passage to mean what it says.

This passage speaks of the blank being "stitched" by which I understand reference is made to the stapling of the wire to the blanks which is frequently called "stitching."

I understand that the idea is that by having several carriages, they can be supplied with blank material and can then be fed one after the other in succession through the machine so as to keep the machine running to its maximum capacity without any cessation, such as would be involved if only a single carriage were employed, which would have to be loaded and unloaded between its successive passage through the machine.

If the machine shown and described in the machine patent were operated to its maximum capacity, there would be wire ends left for twisting together to close the boxes. I regard the leaving of such wires as involved in considering the maximum capacity of the machine. The amount [fol. 335] of wire left depends entirely on the manner in

which the attendant feeds the carriages into the machine. I regard a wirebound box within the meaning of the art we are considering, as a box which is wrapped around and encircled by metallic wires which are connected together at their meeting ends so as to bind the box and strengthen it. In the particular wirebound boxes under consideration the strength of the wires determines the strength of the box. The wires are stapled to the sides of the box and the wires cross the contiguous edges of the sides so that it is the wires which connect the sides of the box together. When the wire ends are twisted together to complete the continuity of the wire, the wire does not slip under the staples during this twisting.

X Q. 138. The stapler in driving the staples makes a slight indentation in the longitudinal wires, doesn't it, which would prevent any shifting of the box sections along the wires?

A. I do not recall noticing that the wires are indented by the staples, though this doubtless may be the case. The union is, however, sufficiently tight so that the sides cannot slip along the wires.

X Q. 139. I hand you a drawing of what I understand to be a wirebound box within your definition; will you examine it and see if I am correct?

A. Yes. You are correct. The drawing shown me is Fig. 37 of the Rosback patent No. 608,917, August 9, 1898, and the specification at page 1, line 12, refers to "wirebound packing boxes." I note also that the specification at line 100, page 1, says "Fig 37 is a perspective view of the completed wirebound box."

In a wirebound box it is essential that the ends of the wires should be united together before the box becomes completed and is bound by the wires, and it is essential that the wires be so arranged that the ends can be secured together to complete the continuity of the wires. The drawings of the several patents do not show the ends of the wires united together by twisting or otherwise. Indeed, the only illustration of the completed box in any of the patents in suit is Fig. 2 of the box patent and this does not illustrate the twisting together of the free ends of the wires. These free ends of the wires are shown in Fig. 1 of the patent.

X Q. 143. Please point out the statements in the patent in suit regarding the securing together of the ends of the wires.

A. I do not notice anything said on this subject in the [fol. 336] box patent or in the carriage and former patent or in the machine patent. In the method patent each of claims 1 to 8 specifies "completing the continuity of the wire binding"; and the specification, beginning at line 2, page 3, speaks of "securing the side units of the blank or box together by means of a binder which, when completed, extends wholly around the finished box, so as to constitute a reinforcing and strengthening belt encircling the finished article."

In the carriage and former patent, the carriage or work-holder positively positions the cleats in both directions endwise and also sidewise in both directions and carries the weight of the cleats and sheets, with two qualifications.

Figs. 1 and 7 of the carriage and former patent show springs 15 bearing upon the cleats at one side.

Also, in practice, some of the cleats would be shorter than the distance between the spacing blocks in front and rear to the extent of the tolerance allowed in the cleats and to that extent the cleat would not be positively held at its opposite ends. The cleats rest in pockets, and these pockets limit endwise and sidewise movement. If in the plaintiffs' patents or in the plaintiffs' commercial machine, the carriage should be moved backward for any reason, the cleats would move backward also.

X Q. 148. But that is not true in defendant's machine, is it, where the cleats are supported merely in stationary guides and are pushed forward by pusher lugs but are not within a cleat length of the lugs ahead?

A. At least, if the defendant's claims were run backwards, the cleats would not be positively moved to the rear by the pusher lugs. Possibly a cleat which is overlaid by a side sheet when the side sheet is under the presser might be moved backwardly as the result of the friction of the side sheet upon it in case that fraction was greater than the friction between the cleat and its guide.

X Q. 149. In mechanics, a carriage is an instrumentality that supports and is capable of carrying something around, isn't it?

A. The word "carriage" in mechanics is used with very great latitude. It is sometimes used solely in the sense that it supports parts. Sometimes it is used solely in the sense that it acts to move or convey parts. Sometimes it is used to describe a device which both supports and conveys.

X Q. 150. If defendant's machine has a carriage for the box material, what composes it?

[fol. 337] A. Primarily, the endless chain with pushing lugs. Also the cleats must be maintained within the reach of the lugs and, accordingly, the stationary guides are important co-operating instrumentalities. Considering both the offices of supporting and transporting, defendant's carriage consists of the traveling chains with its accessories and the stationary guides.

X Q. 151. If the term "carriage" has great latitude in mechanics, the term "work-controlling means" has still greater latitude, hasn't it?

A. Yes.

Anything that controls the work so that it can be operated upon would constitute work controlling means. For example, in one of my answers to a previous cross-question, I suggested that there was an implication in one of the claims in the machine patent to which my attention was directed, that the work controlling means might not move at all and the stapling mechanism might travel over the blank. In that case, the work controlling means would be a carriage only in its supporting office and not in its conveying office. The feed chains which bring the saw-logs to the sawmill would be work controlling means.

X Q. 154. Then in your judgment it isn't necessary that the work controlling means do any more than push the work forward in the stapler?

A. No, since I do not consider that the conveying office is essential since it might be the case as suggested in the preceding answer that the work controlling means might be stationary and the stapling mechanism might travel. What I do regard as necesarily involved would be that the work controlling means should act to position the cleats and the sheets in proper relative position and should maintain them in this position during the stapling irrespective

of whether the work controlling means or the stapling mechanism traveled or whether they both traveled.

The term "flight" is a common one in the conveyor art to indicate the elements which push or advance the work forward. The specification of the box patent does not describe how the box is made other than that the blank of Fig. 1 is first formed in such a way that the cleats are attached to the side sheets by means of staplers straddling the wires and extending through the sheets into the cleats. The blank is then folded in the manner indicated in Figs. 3 and 4 and the box ends are supplied as indicated in Fig. 1 concerning which I do not note any reference in the specification.

[fol. 338] X Q. 157. One of the gentlemen in the room, when I asked the last question, jokingly said, "Refer him to the method patent." That was, as a matter of fact, the correct answer, wasn't it?

A. Bearing in mind that the method patent recites on its face that it is a division of the carriage and former application which was filed October 14, 1904, and that the original application on the box was filed October 17, 1904, only three days later; and that the employment of the carriage and former and the practice of the method will produce a blank like that shown in Fig. 1 of the box patent, I think it would be fairly said that all of the patents in suit relate to the same subject-matter and that a proper way of making the box-blank would be by following the procedure of the method patent.

Several ways occur to me for making the article shown in the box patent, other than the method described and claimed in the method patent. The blank of Fig. 1 of the box patent might be made entirely by hand. The wires might first be cut the proper length. A pair of cleats might be assembled by hand with a side sheet and the wires placed above the side sheet and the staples be driven with a hammer. Then the second side sheet and its cleats could be put in place and wires stapled to them in the same way. This procedure could be followed until the blank was completed.

Another way would be to have an individual former to aid in the hand manufacture by means of which a pair of cleats with an overlying sheet could be assembled and held

in place and then attaching the wires by a hammer driving the staples. The same former might be used in succession in connection with remaining side sheets and cleats.

The third method which occurs to me is that one might start with two long strips of wood of the whole length of the blank. Four side sheets might be placed over these two long strips and the wires and staples then applied. The two long strips of wood could then be passed beneath cutters which would form the cleat ends and separate the long strips into four cleats.

X Q. 159. But to a person who read the box patent at the time it was first issued these possibilities that you have suggested would be regarded as academic rather than practical and commercial, wouldn't they? I do not now want to go into the state of the art, but I imagine that it is not doing so to come out and say that wirebound boxes were known prior to the date these patents in suit were applied for.

[fol. 3339] A. The original box patent issued on October 17, 1905, and a box maker getting a copy of the box patent would, I presume, have no way of getting any information regarding the other three patents in suit. He would have to proceed, therefore, either on his own initiative or in the light of such existing practices and machines which were available to him.

His procedure would largely depend upon how many boxes he wanted to make. If he only wanted to make a few boxes, he would probably find it most economical to adopt the first method which I suggested in my next preceding answer.

If he wanted to make a larger number of boxes, he might find it economical to build a one section former such as I have suggested in the second plan I suggested in my next preceding question.

If he had many boxes to make, he might proceed in the third way I suggested and use in connection therewith a stapling mechanism including power-driven staplers and reels of wire.

X Q. 160. In making these last answers, in which you suggest that a person skilled in this art might want to make one or few boxes, you've overlooked the fact, haven't you, that the patent when it originally issued, in Septem-

ber, 1905, was issued to the National Wire Bound Box Company? Even though you had no personal knowledge of the industry at that time, it's a little farfetched, isn't it, to suggest that they might want to make one or two boxes by hand? Aren't you willing to admit that the method patent shows the only probable way that these boxes of the box patent could as a practical and commercial matter be made?

A. As I have heretofore said, Inwood & Lavenberg filed their application for the carriage and former three days before they filed their original box application, and they filed their application on the machine only ten days later; and, considering the somewhat elaborate drawings of the machine patent, I should regard it as a fair assumption that all three applications were under preparation at the same time. While I know nothing about the actual facts existing in October, 1904, I think it fair to assume that the National Wire Bound Box Company was interested in all three applications, so that I should suppose that they made the box by the instrumentalities of the carriage patent and of the machine patent and by practicing the procedure of the method patent.

X Q. 161. In following the method of the method patent; the box ends have to be stapled from the inside, don't [fol. 340] they? That is, you can't load a box and twist the wires together and then nail or staple the box sides to the box ends as you can do in the case of defendant's boxes?

By Mr. Janney: So far as this record is concerned, the statement as to what can be done with defendant's boxes is either a mere assumption by defendant's counsel or else a reliance upon something that may be said in the Craig patent. It certainly hasn't been proved that defendant's box has the capacity described by defendant's counsel. Even if it has, which seems doubtful, it is entirely immaterial and irrelevant and the question is objected to for all these reasons.

A. In making plaintiff's box, the ends are fastened to the cleats while the box is open and before it is filled and closed.

X Q. 162. In defendant's box as you saw it, isn't it true that you can take a box blank and wrap it around two box ends and twist the loose ends of the wires together and you

will have a complete box, which will, for the sake of handling, at least, maintain its shape and form?

A. Yes.

X Q. 163. And the nails or staples can thereupon be driven through the sheet material into the box ends from the outside of the box?

A. In accordance with my observation of defendant's boxes and of their manufacture, each end has two cleats attached to it, as shown at 12 and 13 of the Craig patent No. 1,208,297, and the blank is folded and applied to these cleated ends so that the two uncleated sides of the box blank are brought into position over the cleats previously attached to the ends. Then, additional staples are driven straddling the binding wires and going through the previously uncleated side sheets into the cleats previously attached to the box ends.

If these previously attached cleats, such as are shown at 12 and 13, Fig. 2 of the Craig patent, are to be regarded as part of the ends, then I would answer your question in the affirmative.

X Q. 164. Another distinction is that by securing two cleats identified by 12 and 13 in the Craig patent, it is possible to employ a box end composed of several individual pieces without using the center batten 14—a fact which is not true under the same circumstances in the box made in accordance with the patent in suit?

A. I do not know.

[fol. 341] X Q. 165. Can you make a guess?

A. I am not advised what the plaintiff may have done in employing two or more pieces of wood to constitute the ends.

X Q. 166. Well, as a hypothetical question, it would be quite possible to leave out the element 14 of the Craig patent, wouldn't it?

A. Yes.

X Q. 167. The only way to make the article shown and described in the box patent is to proceed as follows, isn't it? First, assemble a plurality of box sections in co-operative foldable relationship; foldably connect said sections in said relationship by wires extending across the respective sections to substantial distances from the corner line and secure them against substantial lateral displacement on the sections within said distances, leaving said side sec-

tions otherwise substantially disconnected to permit relative longitudinal shifting of meeting edges of the said sections and bending of the wire to resist such shifting by tensile strength.

A. No. I have already called attention to some ways in which the box may be made by a different procedure than that stated in the question.

X Q. 168. But all of the methods that you suggested in a previous answer are just the same as the method that I have just read. If there are any differences, I wish you would point them out.

A. Let us take the third method I suggested, for example, which consists of taking two strips of wood, each as long as the blank. I suggested placing upon these long strips four side sheets. Indeed, instead of doing this, a single side sheet might be used of the full length of the blank. Then run these long strips and long sheets through a stapling machine, thereby fastening wires by staples straddling them and driven through the sheets into the long strips. Thereafter, saw the long strips crosswise so as to make the cleats and also cut through the sheet material so as to form the side sheets. This would produce a blank such as shown in Fig. 1 of the box patent, but by a different procedure from that recited in the question. For example, that includes as a first step the assembly of a plurality of box sections in co-operative foldable relation and then foldably connecting the sections by wires. The procedure which I suggested would not involve any assembly of a plurality of box sections in co-operative foldable relationship.

X Q. 169. This process that you have just described is not applicable to cases where the cleats have tongue and grooved ends or lap-jointed ends, is it?

[fol. 342] A. No.

The workholder of the carriage and former patent is only useful in connection with a wire feeding and stapling mechanism. The precise details of the machine patent are not essential.

Certainly I should say that for practical manufacture some mechanism or machinery would be required to practice the method of the method patent, although I think it would be possible to carry out the method by hand.

X Q. 172. And it would be proper to make the same kind of an answer in connection with the method and the box patent, wouldn't it, and say that for quantity manufacture the article of the box patent can be produced only by the method described in the method patent?

A. I think that would be the best way of doing it.

X Q. 173. What, if anything, does the machine patent disclose that is not disclosed in the workholder patent, remembering that to give the workholder any utility, its utility must be disclosed?

A. The machine patent discloses but one type of machine with which the workholder can be employed. It discloses means for feeding the workholder step by step and for feeding wire, and driving staples with proper relation to the materials carried by the workholder. It also shows the hand control feed for starting the stapling right.

The workholder might be usefully employed in a different sort of machine. For example, one with the stapling mechanism traveling along.

Indeed, if only a few boxes were made, the workholder might be usefully employed, even if the staples were driven by a hammer, or if a hand-held stapler were employed.

The workholder patent discloses all the details of the workholder and in the machine patent the workholder is only conventionally illustrated and reference is made to the workholder patent for disclosure of the details. Without these omitted details, the machine wouldn't be of much use.

I regard the tensioning of the wires and their cutting into the corners of the box as an important element of the method patent. Also, the capacity of the veneers to slide longitudinally on each other.

I do not know what things appear in the original application that was filed for the method patent which do not appear in the reissue patent.

I do not recall whether plaintiffs' machines which I saw as much as seven years ago, had devices to insure uniform [fol. 343] spacing between blanks. I do not think that in the machine patent in suit it is necessary to use the preliminary feed for each blank. The workmen might initially place the carriage in such a position that the hand feed would not be necessary.

X Q. 181. You have said that the tensioning of the wires in defendant's boxes is evident. What caused such tensioning in view of the fact that there was no overlap of the sheet material?

A. I observed in the boxes that I examined the fact that the wires did cut into the edges of the sheets. I did not go into any investigation as to what reason this was attributable.

Cross-examination closed.

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From the rebuttal deposition of ARTHUR S. BROWNE, plaintiffs' expert, commencing on page 308 of the Gibbons record:

Cross-examination.

By Mr. Cox:

Figs. 1, 3 and 4 of the expired patent in suit show the unconverted box blank. Fig. 2 shows the box blank converted into the finished box. In Fig. 1 the blank has eight cleats, two on each section, and in Figs. 1, 3 and 4 the cleats stop short of edges.

In the Chicago Mill & Lumber Company case the defendant's blank had eight cleats, and some of the cleat ends in that defendant's blank terminated short of edges. In Craig patent No. 1,208,297, Fig. 1 shows the box blank and in this view there are only four cleats.

X Q. 9. And in this view none of the cleat ends terminate short of edges of the sheets; isn't that true?

A. Yes.

As shown in Fig. 3 of the Craig patent, the wires do not cut in at the corners of the box. In Fig. 3 of patent No. 799,854 the wires cut in at the corners, in dotted lines, and in Fig. 4. In the expired patent in suit Fig. 3 does not show the cutting in of the wires at the corners.

X Q. 13. In patent No. 1,208,297, assume that the blank in Fig. 1 has no cleats at all, and that the cleats 8 and 9 are, instead, fastened in place on the head shown in Fig. 2; that the cleatless blank thus provided is then bent around the cleated heads thus provided; and that staples are then

driven across the wire and into the cleats on the heads—[fol. 344] does the box thus constructed respond to or come within the meaning or contemplation of claim 1 of the expired patent in suit?

A. In the absence of some factor which does not occur to me at the present time, since I have not seen the box made in the manner stated, I should say that the box so constructed would conform to the subject matter of claim 1 of the Inwood and Lavenberg reissue, provided that the effect was to tension the wires at the corner edges of the box, otherwise not.

The presence or absence of the cleats on the transitory or blank stage of manufacture is not a controlling factor. As to features in claim 1 of the expired reissue patent not found in Ramsey 486,297, the conspicuous difference is that Ramsey has no wires. Ramsey's box is a nailed box. The wires I mention are shown in Roslack. In Ramsey all the cleats are first secured to the end walls before being secured to the side sheets. I regard the Hamilton blank in patent 373,828 as a full-cleated blank. I do not regard it as a wire-bound box, because the blank of Fig. 2 of Hamilton's patent is a wire woven slatted fabric, and the ends of the wires are not secured together to fasten and bind the box. The box is fastened by the independent wires D shown in Fig. 1 and referred to at page 1, line 97, and these wire fastenings simply pass through the meeting slats and do not extend around the box.

The ends of the slats are secured by tacks or nails to the channeled cleats. These channeled cleats receive the ends of the box, each of which is likewise composed of wire-woven slatted fabric. Accordingly the box acts as a nailed box when subjected to distorting strains.

Hamilton's object was to produce a knock down box that could be repeatedly used, simply requiring for repeated uses the replacement of the fastening wires D in case they are destroyed by untwisting.

The Inwood and Lavenberg box, on the other hand, is a one time box and is not designed to be knocked down and again used.

I consider the type of fastening devices by which the wires are secured an essential characteristic of the box patent in suit to the extent that the fastening of the wires must

be in such a way that they will firmly bind the box circumferentially. One of the chief points of distinction is that in the Hamilton box the wires are not twisted together at the ends to form a closure, but they are so twisted at the ends in Rosback.

Referring to Fig. 2 of Hamilton, it is my understanding [fol. 345] that the blank shown in full line could be folded to the position shown in dotted lines without tensioning the wire, especially in view of what the Hamilton specification says beginning at line 40, page 2. At this point he says that when the slats are made of hard wood he notches them as shown in Fig. 7, but when "soft wood is employed, the wire may be embedded in the wood sufficient to answer this purpose." From this I gather that either as a result of the weaving operation or of the folding operation there may be some tensioning of the wires. I do not think, however, that this can be of any substantial advantage to the box, first, because of the soft quality of the wire which is requisite in order that it may be woven; and, second, because the slats are nailed to the cleats and hence the ends of the box, so that the box would fail as a nailed box and would owe its strength to the wood and not to the wire; and, third, that the box is not bound circumferentially by the wire.

X Q. 24. Then, as I understand you, you do not regard a box as wirebound unless the ends of the wires are twisted together to form a closure, but that this characteristic was taught and shown by Rosback?

A. Yes, except that it is possible that some other way of uniting the wires than by twisting might be utilized. Twisting, however, is the universally employed way.

In Greenstreet 547,486, and in Lipp & Springer 801,998, the blanks are made cleatless. The "nails" 8 in Averill engage over the wires; that is to say, each nail is so driven that its head overlies the wire strands beneath it. In Averill the end of the wires are twisted together at the top. There is nothing that I know of to prevent Lipps & Springer and Greenstreet and Averill from using the Ramsey panelled ends for their boxes. The Ramsey cleated or countersunk head is lighter than a solid head of the same thickness. I am aware that the so-called panneled end or countersunk

head was used long ago, even before Ramsey, for lightness, and also economy in materials, directing my attention to Shunk 410,034, Patterson 441,326 and Baker 451,549, doubtless much older than any of these patents.

X Q. 31. Suppose defendant should make its blank without any cleats and then staple the wires and sheets to the Ramsey cleated head—is that what claim 1 of the expired patent in suit describes?

A. In the absence of some unforeseen factor due to my never having seen a box so constructed, and hence the liability of my overlooking some important consideration I should say that claim 1 of the Inwood and Lavenberg pat- [fol. 346] ent describes such a structure, provided that the wires were tensioned, otherwise not. That is to say, the ultimate strength of the box must be dependent upon the wires and not upon the wood.

So far as I am aware, the depositions which I gave in the Chicago Mill & Lumber Company suit were true within my best information and judgment, and are still true in the same manner. It is possible I may have fallen into some error, but I do not now recall it. I do not recall that I have changed my views any since giving those depositions. It was nearly eight years ago since I last testified in that suit, so that I do not recall everything that I said. If wires were put around the Ramsey box just as they are in Rosback, that gives what is described in claim 1 of the expired patent in suit with the same qualification given in answer to X Q. 31.

With respect to whether the box of Fig. 2 of the expired box patent in suit is "foldable," I recall noting some errors in Fig. 2 of the drawings of the Inwood and Lavenberg reissued patent at the time I testified regarding it, eight years ago, and these are apparent on comparing it with the corresponding figure of the original patent No. 799,854.

In Fig. 2 of the reissue the draftsman has left out the inner line representing the inner face of the right-hand side of the box, as the same is shown in Fig. 2 of the original patent, thus giving five steps to the cleat ends instead of four. Also at the upper left-hand corner of Fig. 2 of the reissue patent the upper step of the top cleat is some twice as high as it should be as appears from Fig. 2 of the original patent.

Fig. 2 is supposed to be the box resulting from the folding of the blank shown in Fig. 1 and with the box ends inserted.

The draftsman's error in reproducing Fig. 2 of the original patent doubtless resulted in showing a defective box in Fig. 2.

The expression "when folded" in this claim means that the blank of Fig. 1 is folded into box form with each side at right angles with the adjoining sides.

Grammatically it may refer either to the act of folding or to the conditions existing after the fold has been made.

X Q. 37. Is there any implication as to whether the box end is absent or present?

A. Only in so far as the cleats themselves constitute a part of the box ends. In the specific construction in this patent the ends of the box (as distinct from the cleats) are put in place after the side sheets and the cleats have been [fol. 347] brought into box form. Accordingly, there is no implication in claim 1 that these ends must be present either during the folding or immediately following the folding.

X Q. 38. Which structure does the claim describe—Fig. 1 or Fig. 2 of the expired patent—or does it describe both?

A. Both.

In Greenstreet 547,486 the sections overlap at the corners, making due allowance for the draftman's error at the lower corner of the box shown in Fig. 2. The reason I say that in this patent the wires are "not tensioned at all," is that the patent shows a wire at the middle of the box and flat metal strips between this wire and the ends of the box.

Accordingly, Greenstreet's structure must be such that his flat metal strips can be bent at the corners of the box, and they cannot be substantially tensioned by becoming embedded in the slats. Accordingly, Greenstreet makes the space between the corner slats great enough to permit the folding or bending of the flat metal strips. In this connection, beginning at line 82, page 1, he says, "In making up the material before the same is bent into the form of a box, the space between the slats A' will be equal to the thickness of the said slats, so as to admit of their being brought into position at right angles to each other in forming the corners."

It will be noted from Fig. 2 that the metal strips are at substantial distances from the box ends, so that the effect of bending the metal strips would be to bend the slats rather than embed themselves in the slats, provided that there was present any tendency of the metal strips while being bent to approach the slats more closely; such as theoretically might be the case since the outer surface of the metal strips has to follow a greater path than the inner surface when the strip is bent.

In the claims of the expired patent in suit, "straight-edged" means that the edges are square, that is to say, at right angles to the side faces as contrasted, for example, with beveled edges. It is my opinion that the claim is not descriptive of a blank having beveled edges for the sections.

In Healy 768,123 the ends of the metal bindings are fastened together, but the patent nowhere says that the metal binding is fastened through the sheets into the cleats.

X Q. 45. Well, if you will examine the drawings carefully you cannot reach any other conclusion, can you?

A. Yes, I reach exactly the opposite conclusion. As I [fol. 348] have pointed out in my direct examination, the paragraph of the specification beginning at line 33 describes the connection of the box sides to the metal straps without making any reference whatever to the cleats.

Thereafter, in the next following paragraph, the specification describes the application of the cleats to the sides without any reference to the metal straps.

The specification refers to "nails, rivets, prongs or screws" (line 36) as attaching means. Fig. 1 shows at 9 what appear to be the heads of nails, rivets or screws.

Now, if Healy had intended that these nails or screws should go all the way through the metal straps, the sheets and cleats, so as to be exposed on the under side, shown in Fig. 2, then there would be illustrated in Fig. 2 the points of the nails, or the points of the screws, or the clinched ends of the rivet, and the illustration would be different from what is shown in Fig. 1.

On the contrary, the illustration of fastenings is just the same on the bottom side as on the top, thus implying that the fastenings are driven from the bottom in just the same way that they are driven from the top.

In this connection, it is to be noted that the inner undercut cleats 11 are shown in Fig. 2 with just the same sort of fasteners as are shown for the end cleats 12, and the undercut cleats are certainly not attached by fasteners extending through the metal strips.

Therefore, the drawings fail to show unmistakably that the side sheets are secured to the cleats by fasteners driven through the previously prepared holes in the metal straps and the implication of the specification is just the other way.

X Q. 46. You must admit, mustn't you, that by comparing Fig. 1 and Fig. 2, the fastening devices, if they were separate as you say, would be in line with another, that is, coaxial?

A. Yes, provided the nails were driven straight, and even here a qualification must be made as to the two lower cleats 12 shown at the right hand of Fig. 2, which show no fasteners corresponding to the metal fasteners in Fig. 1. Also, Fig. 3 illustrates a substantially different spacing of the fasteners from what is shown in Fig. 1. In this connection note that particularly the upper and lower fasteners on the right-hand strip at the four-sided box. If these fasteners went through the cleats, their ends would be exposed on the beveled edges of the cleat beneath provided they were driven straight. This would likewise be true of the upper left-hand fastener and also of the rearmost fastener shown [fol. 349] in Fig. 3, and also of the upper fastener shown at the extreme right of Fig. 3. This showing is entirely inconsistent with Fig. 1. Therefore, I conclude that no significance is to be attached to the spacing of the fasteners above and below as indicated in Figs. 1 and 2. If we assume that the draftsman had a completed box before him, he apparently showed the heads of his fasteners all alike above and below, because he could see those. But, he evidently used his own discretion as to the spacing and evidently paid no attention to getting any accuracy in the spacing, as is evident by comparing Figs. 1 and 3.

X Q. 47. Without commenting on what is obviously a somewhat labored explanation and the fact that the witness doesn't say anything about a draftsman's error, as indicated on two different occasions this morning, and without attaching special importance to the fact that these fastening

devices are portrayed in the patent at a diameter of one-half the diameter of an ordinary bank pinhead, I would like to ask you as a mechanical expert how you would fasten these parts together if the job were put up to you. Suppose you had a cleat and were asked to fasten a thin sheet on top of it and a thin strip of metal on top of that. Do you wish to go on record as saying that you would proceed in the manner you have indicated that Healy did?

By Mr. Janney: The question is objected to as confusing. It purports to refer to the Healy patent, but the hypothetical procedure referred to in the last sentence but one, mentions "a thin sheet," which is wholly inconsistent with the disclosure of the Healy patent. If defendant's counsel desires the witness to answer with reference to the Healy disclosure, that should clearly appear. On the other hand, if he wishes an answer with reference to a hypothetical procedure not disclosed by Healy, that should equally appear.

By Mr. Cox: The witness may answer with reference to the Healy disclosure.

A. Of course, your question gives a direction which is not given in the Healy patent.

If I were told to proceed as your question directs, I would first nail the sides to the cleats and I would then nail the thin strip of metal to the sheets.

But Healy gives no such direction. On the contrary, he tells you in the paragraph beginning at line 33 to connect the sides to the metal straps. After he has got all through this explanation he then brings in his cleats and makes no [fol. 350] discrimination between the time of application of his two different sorts of cleats.

X Q. 48. Are you going to go on record as saying that in your opinion if a practical box maker were told to make the same assembly as is shown in the Healy patent, it would not be obvious to him to use the fastening devices for holding the three parts together?

A. You mean in 1923 or 1904?

X Q. 49. 1864, if you want to.

A. The box or crate which the Healy patent describes is obviously much larger than what is illustrated in the drawings. The Healy specification speaks of shipping lard cans and paint cans in his crate or box.

Hence, presumably, Healy is dealing with materials of ample size and thickness.

I think that a practical box manufacturer if given the Healy patent, August 23, 1904, would have proceeded by first connecting his metallic straps to the sides. He then would have turned the blank over and separately attached the cleats, especially since his pairs of cleats on the box sides 1 and 3 must be carefully disposed with respect to each other so that the undercut cleats can properly cooperate with the specially formed ends. The practical box manufacturer of 1904 would have to turn his blank in the position shown in Fig. 2 in order to apply the undercut cleats 11, and as these must be carefully disposed with reference to the corresponding cleats 12, it would seem to be the feasible thing to attach all of the cleats at the same time.

X Q. 50. Twenty years ago, when Healy applied for his patent, there were known such complex machines as the Mergenthaler linotype, the compound locomotive, the telautograph, the Hoe rotary press and the Jacquard loom. In spite of this, I understand you want the court to believe that in your opinion it required invention to drive a nail through three thicknesses of material; is that correct?

A. I am familiar with the Mergenthaler linotype, the Hoe rotary press and the Jacquard loom, having been engaged in litigation with respect thereto. There is nothing in any of these machines which helps me to find in the Healy patent something not disclosed by Healy, nor is there anything in these machines to explain how box sides, metal straps and cleats can be connected.

I am not familiar with the telautograph and only very generally with the compound locomotive.

X Q. 51. But the fact remains that I presume you want it understood that because the Healy patent doesn't in [fol. 351] words tell the box maker to drive a nail through the three thicknesses—the metal strip, the side material and the cleat, that it required invention to do so?

A. Of course, the primary question is what Healy does disclose. I note further, in addition to what I have already said, that Healy says that his metallic straps may be connected either at the ends of the box sides or near their ends, at line 14. If his straps are connected near the ends instead of at the ends, then it would not be feasible to use the same nails for attaching all three together.

The description which Healy does give is applicable whether the metallic straps are fastened at the ends or near the ends.

The question of invention applicable to the case depends upon the result sought after and the applicability of the particular means in securing that result.

Assuming that a new result is obtained not contemplated or suggested by Healy, then, in the production of that result, the driving of the same nails through the metallic strips, sides and cleats at the same time, might involve invention.

It is common in patent drawings and in shop drawings to indicate rivets by little circles, especially where their heads are represented.

X Q. 53. But I have seen hundreds of drawings where the circle was employed to indicate the opposite end of the rivet after it had been formed in place. That's your experience also, isn't it?

A. Without having in mind any such illustration at the present moment, I should say that I had in instances when the accompanying description had made it plain that the rivet had been driven all the way through and then upset on the opposite side, as, for example, in connection with boiler heads.

I have seen a harness rivet. The particular harness rivets that I am familiar with were those involved in litigation in which I was engaged, wherein the shank of the rivet was split and spread. That end of the rivet could not properly be shown as a circle. I do not recall ever having seen it shown as a circle. I have never seen the rivets that have been used in the last thirty years to attach straps to skates.

X Q. 57. Then you have full knowledge about how to represent one end of a rivet, but are a little uncertain about how the other end should be represented?

A. No uncertainty as to the sort of rivets with which I am familiar.

[fol. 352] In the expired patent in suit, the disclosure of a feature of twisting the ends of wires together is only by the reference to "wirebound boxes." At that time this term was the known and recognized term to indicate the character of the Rosback box to which the reissued patent in suit makes unmistakable reference beginning at line 69. There

is nothing in the language of claim 1 of this patent which limits the claim to the use of staples for securing the sheets to the cleats, but I should say this was true as a matter of necessary implication in connection with the specification and drawings. As far as the language of the claim is concerned, the sheets could not be nailed to the cleats. An efficient securing of the wires is necessary, and I do not see how this could be effected by anything except a straddling fastener, such as a staple. The word "secured" itself as used in the claim necessarily implies that the wires shall be securely attached to the cleats. I should say that gluing would not be securely fastening.

Assuming that in combining Greenstreet's wirebound flexible blank of patent 547,486 with Ramsey's cleated or paneled end walls, that the ends of the wires are finally twisted together in closing the box, just as they are twisted in the Rosbach patents, this does not produce what is described by the claim.

In the first place, the only wire which Greenstreet shows or describes is at the middle of the box, and I do not see how the ends of this wire could be twisted together to close the box without involving a departure from what Greenstreet discloses. Greenstreet closes his box by means of a flap or curtain (page 1, line 103), consisting of an extra flap A on the cover, which is turned down so as to overlap the extra thick cross slat A' at the top edge of the front side of the box, the flap or curtain being then nailed to the thick top slat A'. This would preclude any twisting of ends of the wire together.

But, assuming that this flap or curtain should be omitted and the ends of the wire B should be arranged so as to be twisted together, still the application of Greenstreet's sides to the Ramsey ends would not produce the Inwood and Lavenberg box, because the Greenstreet slats would have to be nailed to Ramsey's cleats, and the resulting structure would act as a nailed box, depending for its integrity upon the strength of the wood and not upon the wire. There could be no endwise slipping of the box sides relative to each other, bringing into play the progressive tensioning of the wire, as in the Inwood and Lavenberg box.

[fol. 353] Claim 1 of the expired patent in suit does not specify that the wires are fastened to the cleats.

X Q. 66. Going back for a moment to the Healy patent 768,123, while you may wish it to appear that the rivets with which you are familiar are commonly represented by something else than a circle, nevertheless you are not willing to swear, are you, that in your opinion the circles appearing opposite each other in Figs. 1 and 2 do not both represent rivets?

A. No.

Healy mentions rivets among other things, in connection with the attachment of the metal straps. He does not say so in connection with the attachment of the cleats. He does not specify by what means cleats are attached. All he says is that the sides are provided with cleats.

X Q. 68. But having employed the same symbol in both cases and having mentioned rivets in one case, it would be stretching it, wouldn't it, to not assume that rivets may be employed in the other case?

A. Not at all.

X Q. 69. You mean under the exigencies of the present occasion, do you?

A. No.

X Q. 70. And reading over the specification and seeing the same symbols used in both cases and rivets being mentioned in one case and no mention in the other case, you would have no means of knowing what the other symbols were intended to represent, is that it?

A. Yes, I think that the round circles in both cases are intended to represent the same thing, namely, the heads of the fastening devices.

The Greenstreet blank of patent 547,486, when all wires are used instead of the strips, as suggested by the patent, and when combined with the Ramsey cleated or paneled ends does not respond to the language of claim 1 of the expired patent in suit, if staples are substituted instead of nails to fasten the slats to the cleats. This for the same reason as that already given in answer to X Q. 64, modifying that answer to include the condition that the straps shown by Greenstreet are replaced by wires as the Greenstreet specification suggests may be done.

X Q. 73. It was obvious, wasn't it, at the time the expired patent in suit was applied for, that cleated heads like Ramsey's could have been substituted for the flat heads

of Greenstreet 547,486 with like effect and without the exercise of invention?

A. Yes, provided that Ramsey's cleated ends should be [fol. 354] recessed or notched as indicated at 6" in the Greenstreet drawings. I note that Greenstreet suggests where "only minimum strength is required" (page 2, line 12) these notches can be omitted and no extra thickness need be given to the corner slats. Hence with this weak Greenstreet construction, the Ramsey ends might be employed.

I am aware that the Ramsey patent says, commencing line 8:

"This invention has for its object to provide a new and improved head for orange and other boxes, or crates which is efficient, durable and economical. . . ."

Also that he says, commencing line 82:

"When the open rectangular frame is formed, a sheet 7, of wood or veneering, is applied to one side of the frame to complete the box-head, as will be understood by reference to Figs. 1 and 3. In practice one of these heads is used at each end of the box or crate, and the side walls 8 of the latter are composed of sheets of wood or veneering nailed or otherwise secured to the edges of the box-heads, as will be understood by those familiar with this character of boxes or crates for shipping oranges and other fruits or vegetables."

I note that he says that his new box-heads can be used with "other boxes or crates," also that he did not limit himself to nails, but on the contrary, stated "sheets of wood or veneering nailed or otherwise secured to the edges of the box-head." The word "otherwise" would include stapling the sheets to the cleats. My definition of a mechanical equivalent is: When two devices operate in substantially the same way in substantially the same organization to produce substantially like results, they are mechanical equivalents.

There are two things in the Rosback box as shown in Rosback patents which prevent the cleats from functioning exactly as they do in the expired patent in suit. First, the Rosback sheets are connected together in the completed

box by reason of the circumstance that the sheets at the corners of the box are still connected to each other by reason of the fact that they have never been completely severed from each other. Hence the connection between the sheets at the corners affords substantial resistance to the sides sliding with respect to each other, and carrying [fol. 355] the cleats with them. In the second place, the Roeback wires are not tensioned by being embedded in the straight edges of the sheets so that they have but little initial tensioning to resist initial sidewise slipping of the sides even if the sides were capable of sliding with respect to each other. If it were not for the fact that the little film of wood were present in the finished Roeback box, the sides would slide with respect to each other.

In Healy 2,068,123, staples could be used in place of nails.

In Complainant's Exhibit No. 42 in the Chicago Mill & Lumber Company case, the drawing shows the sheets pulled away from the cleats at certain places. However, more accurately, it should be said that this illustration shows the two parts composing each side of the box as having slipped with reference to each other at their meeting edges and hence with respect to the underlying portions of the cleats but without affecting the union of the sides to the cleats where the staples are located. That was the intent of the figure.

The patent in suit is not limited or confined to "veneer" as the sheet material. But in boxes of this character thin material such as is commonly called veneer may be employed. There is no definite line of demarcation as between material that comes within the term and material that comes outside the term as regards thickness only. In the Roeback patents the use of other sheet material is permissible and contemplated, provided the material is thin enough so that when scored it can be bent. It is true that in many of these patents for blanks and boxes there is a wide latitude as to what is suitable for sheet material. If fibre board or similar sheet material having no "grain" is used in making the Roeback box, the trouble set forth in the disclaimer in the expired patent in suit will not occur.

The expired patent in suit says that,

"Our invention relates to certain improvements in wire-bound boxes, especially of that class in which the blanks

onstituting the four sides of the box are assembled and se-
ured in relative position to each other prior to folding by
einforcing wires, and has for its object the assembling and
astening together such parts constituting the completed
lank so that the same when folded will produce over-lap-
ing edges of the side sheets or board, the advantages of
hich will be hereinafter pointed out."

fol. 356] I will show just where the said "advantages" are "pointed out" in the patent.

In the paragraph beginning at line 53, the specification oints out that when soft wood veneering is employed for he sheets, the reinforcing wires will cut into the sharp dges of the sheets and as the result of the tensioning of he wires the abutting edges of the sheets are held in osition and against moving away from each other by he reinforcing wires, this being the case under the normal ondition of the box.

In the portion of the specification beginning at line 69 n objection to the Rosback box is pointed out, and this bjection does not exist in the box of the expired patent f Inwood and Lavenberg.

X Q. 87. Then the "advantages" are really not pointed ut but are left to inference?

A. No. The first advantage is specified in the patent. The second advantage seems to me to be unmistakably nplied.

X Q. 88. Well, it is only pointed out by pointing out the lleged disadvantages of the Rosback box, isn't that so?

A. Yes.

X Q. 89. In the expired patent in suit the edges of the heet come together, do they not?

A. Yes, substantially so.

With this construction the blank could not fold if the heets were of such hard material that the wires could ot cut into the corners of the sheets.

X Q. 91. The expired patent in suit says absolutely noth-ng about your relative sliding theory as shown in your Exhibit No. 42 in the Chicago Mill & Lumber Company ase, does it?

A. No. That is a corollary.

In Hamilton 373,828, the cleats are shown on the blank Fig. 2, and there are eight cleats, some of the ends of hich terminate short of the edges.

X Q. 94. In Lipps and Springer, 801,998, the box blank cannot be used without heads or end walls, is that right?

A. No.

It is correct that in the expired patent in suit the box blank can be folded and used as a finished box without heads or end walls, except insofar as the cleats themselves constitute partial end walls. I think it is probably true that in the Craig patent, 1,208,297, the blank has no stability alone and cannot be used without the cleated heads or end walls.

I am aware of the statements in the Craig patent No. 1,208,297, lines 42 to 59, page 2, in which the patentee [fol. 357] points out how that Craig box can be used more than once and used as a knocked-down box.

X Q. 98. The Inwood and Lavenberg box forming the subject-matter of the expired reissued patent in suit can be used over and over again when used without end walls; is that not correct?

A. The limitation to the repeated use of a wirebound box is dependent upon the twisted wire ends. The common practice is to open the box by cutting the wires and not by untwisting them. The wires cannot be repeatedly twisted and untwisted. It might be done once but I am very doubtful of its being done twice.

The number of times would depend upon the quality of the wire, but no matter what that might be, there would be a limit in the number of repetitions. The wirebound boxes fall within the classification of "one-time" boxes.

X Q. 100. And a box that was not a one-time box, then, would not fall within the classification?

A. I shouldn't be as rigid as that. A given box might well last for one untwisting and retwisting and that would not take it outside of the patent. But the patented box is not of the character known as a knock-down box, capable of indefinite taking to pieces and putting together again.

X Q. 101. In your answer to X Q. 64 you say that the only wire which Greenstreet 547,486 shows or describes is at the middle of the box. What have you to say with respect to the following quotation which is taken from the patent commencing at line 58:

"A mixed construction, using part wire and part strips, may be used to advantage, the wire, being cheaper than the

strips, effecting a saving in cost, and the strips being secured by tacks or nails driven through them into the staves, prevent any slipping or movement of the staves longitudinally along the wires. It is not desired, however, to limit this invention to the use of wires or strips, as either may be used alone or both together without departing from the spirit of this invention."

A. This is the portion of the Greenstreet specification which I have already made reference to in my X Q. 72.

While this quoted passage is not as clear as it might be, since it may mean, first, that the wire B may be omitted, or, second, that the strips B' may be omitted, nevertheless it may also be intended to convey the idea that all three of the metallic elements B and B' may be wires and it was on this understanding that I answered X Q. 72.

[fol. 358] The Greenstreet patent does not say that either wires may be substituted for straps or straps for wires and is ambiguous as pointed out, but I have previously answered this on the assumption that wires may replace the strips B', B'.

X Q. 103. Regarding Howenstine patent 453,479, you say in your direct "the box blank, when in flat form, does not have any cleats secured to the side sheets." In your former testimony, in the Chicago Mill & Lumber Company case, you said "the box blank, when in flat form, does not have the cleats secured to the side sheets." Are you offering this as a substantial difference between this Howenstine patent and the expired patent in suit?

A. The clause you quote from my present direct examination was dictated by me from my former testimony in the Chicago Mill & Lumber Company case. I note that the stenographer has got the word "the" before cleats changed to "any." I had not noticed this before, and very likely in dictating I may myself have made the alteration unconsciously. I do not see what possible difference it makes in the meaning and I did not intend any difference. The difference pointed out is a distinction between Howenstine and the reissued patent in suit.

I find no statement in the Howenstine patent that the blank can be used without the cleated heads or end walls. I suppose that cleatless blanks cannot be used without end walls.

X Q. 106. It is true, isn't it, that the blank shown in Fig. 1 of this Craig patent 1,208,297 cannot be used as a box without cleated heads or end walls of the kind shown in Fig. 27?

A. I think I may have been too hasty in answering a similar question yesterday in the negative. But, perhaps, with your present qualification "as a box," I may answer in the negative on the assumption that you intend that a box shall have ends.

I do not recall having personally seen the full-cleated blanks such as shown in Fig. 1 of the expired patent in suit used without end walls, but my information is to the effect that it is sometimes so used. I have already referred to the statement in the Healy patent 758,123, lines 69 to 72:

"The box or crate may be used without the ends when lard and paint in cans is to be shipped, as the cleats will prevent the cans from slipping out."

X Q. 109. It is true, is it not, that the Greenstreet cleatless blank cannot be used with heads or end walls?

[fol. 359] A. Yes, except as a mere wrapper.

X Q. 110. You say (page 220 of your rebuttal deposition): "The only box-blank which the Howenstine specification thus describes is the blank comprising the four side-sections with their stiffening-rods and the two cleats which are secured to the lid." Does this materially differentiate the Howenstine patent from the reissued patent in suit?

A. At that point I alluded more particularly to Howenstine's construction, wherein the cover or lid of the box has its own stiffening rods which are independently formed, and stiffening rods which are common to the bottom and side walls of the box, the lid being pivoted to the rear wall of the box by a series of hinged joints constituted by the meeting ends of the stiffening rods on the lid and rear wall respectively. Howenstine's lid does have two cleats attached thereto. Accordingly, before the end walls are assembled there is a blank consisting of the front and rear sides and the bottom with their stiffening rods plus the cleated cover or lid, with its own stiffening rods, the lid being hinged to the rear wall. It was this organization to which I called attention in the portion of my deposition referred to, and I regard any such organization as impor-

tantly different from either the Inwood and Lavenberg flat blank or the Inwood and Lavenberg completed box.

X Q. 111. It is your position, is it not, in your attempts to read claim 1 of the expired patent in suit on defendant's box, that the cleats 12 and 13 of the Craig patent 1,208,297 ultimately become a part of the "foldable box blank" specified in the claim?

A. I am not aware that I have ever "attempted to read claim 1" on the defendant's box, or anything else, fully appreciating that the significance and scope of claims are wholly outside of my competence.

My comparison has been between structures.

X Q. 112. Yes, but it is your position, isn't it, that the defendant's box embodies what is described in claim 1 of the reissued patent in suit?

A. I leave the claim to counsel and to the court.

My position is that the defendant's box is substantially like the box of the Inwood and Lavenberg reissued patent.

The claim is the most important part of any patent, and in considering the patent in suit I have omitted consideration of the claim to the extent that I have made no attempt whatever to say what the claim means or to interpret it in any way. I have not considered at all whether the claim is in harmony with the rest of the patent or not. Of course, [fol. 360] it sometimes happens that claims contain descriptive matter, and I often read claims with that end in view, but not for the purpose of undertaking to interpret the claims or to apply the claims or to say what their boundaries may be. My position is the same with respect to the rest of the claims involved in this litigation, and I have not applied any claims to defendant's structures.

X Q. 117. Well, you find it necessary, don't you, in comparing the expired patent in suit with defendant's structure, to follow the blank past the stage when it is a blank and into the stage when it is a box. Otherwise, it is a mere half-cleated structure, and not what is shown in the drawing or described in the description of the patent?

A. Yes.

I have followed the same method in connection with the Howenstine patent.

X Q. 119. Then in the transitory blank stage the defendant's structure does not follow the drawing or come within the description of the expired patent in suit, does it?

A. I had supposed that I had finished my consideration of the defendant's box in my former testimony in this case and had then fully expressed all of my views.

However, my view of the matter is that the defendant's box is substantially the box of the reissued patent in suit from whatever aspect it is regarded.

A box blank is significant only because it is going to be incorporated in a box. If it always remained a blank I do not know of any useful purpose to which it might be put.

I have already pointed out in my former deposition that in the flat form the Inwood and Lavenberg blank has eight cleats, whereas in the defendant's flat blank there are only four cleats.

But when both blanks enter into the completed box, then in both instances the box has eight cleats, two for each side, and they are related to each other and to the box sides so as to constitute a box in substantially the same way and with substantially the same effect both in the reissued patent in suit and in the defendant's box.

For a fuller expression of my views I call attention to my former deposition in this case.

The Hamilton box is not made by the Rosback method. What is done is this:

The slatted fabric is woven, slats or laths and wires being used in weaving. There are looms which are known [fol. 361] as "slat and cane" looms for doing this character of work. If the slats or laths are made of hard wood they are notched, as shown in Fig. 7. If the laths are of soft wood, the notching may be omitted, since the wires will embed themselves in the soft wood during weaving.

The cleats are channeled and are made in individual cleat lengths appropriate to the sides of the box.

These two products thus separately made are then united together by tacking or nailing the channeled cleats and the ends of certain of the slats together. Hamilton thus separately makes his woven fabric and cleats and subsequently fastens them together.

The sheet material and the cleats are also pre-formed in Healy patent, 768,123, and fastened together prior to

assembling them with the box ends. This is not true of Howenstine, 543,479. As I understand Howenstine, his procedure is as follows:

He makes up his bottom, front, back and cover in the manner which I have mentioned in my answer to X Q. 110. As a separate operation the end walls are constructed preferably "inter-cellular," as mentioned at page 1, line 89.

There is some uncertainty in the specification as to when the cleats or "battens" *i* are applied at the bottom, front and back of the box. From the description beginning at page 1, line 98, it would seem to be the case that these particular cleats are not put in position until the front, bottom and rear of the box are in box form, with the end walls in place. The specification says:

"The end walls *h* of the box-body A are set in a short distance from the ends of the side walls *a* to permit the battens *i* to be located on the end walls and have their outer walls secured to the end portions of the side walls by the staples *i'*, the thickness of the battens being so proportioned that they will form a strong reinforcing brace for the ends of the box-body when they are thereto attached by the staples *i'* or other similar means." (Page 1, line 98.)

This would imply that the sides and bottom of the box were already in box form before the corresponding cleats were attached, and that the ends are first put in place, then the cleats are fastened to the front, back and bottom and then to the end walls.

The patent does not unmistakably say that the cover is put in place before or after the end walls and front, back and side cleats have been attached, but it appears from the passage beginning at page 2, line 47, that Howenstine con-[fol. 362] templates knocking his box down by drawing out the staples *i'*, which would leave a blank comprising front, bottom and back, with the cover hinged thereto. This would also leave the front, bottom and rear cleats secured to the end walls.

X Q. 123. How about the British patent to Archer 4793? Does this patentee pre-form the cleats and then fasten them to the sheet material, or follow the Rosback method?

A. He doesn't follow the Rosback method, but the method first mentioned in your question.

I do not know the step-mitered cleats are not now used and have not been used for many years. I have never seen any in use.

The old Rosback method can not be used with tongue and groove cleats such as both plaintiffs and defendant use. In other words with tongue and groove cleats the cleats must be preformed and shaped before they are fastened to the sheets.

X Q. 128. You have mentioned some hypothetical method of forming the cleats after they are fastened on the blanks, as substituted for the method of the expired reissued patent in suit. Did you ever hear of such method in actual practice?

A. I do not recall any hypothetical method that I have heretofore mentioned. So far as I recall, the only method of formation which I have referred to, in the formation of the cleats after being secured to the side sheet material, is the Rosback method.

X Q. 129. You have said that the article shown in the expired reissued patent can be made by other methods than the one shown and described in the method patent. Now, in order to have them conveniently together, will you please list all of the methods you think you know of by which the box blank of the expired reissued patent can be made?

A. In my answer to X Q. 158 in my former deposition, at page 186, I referred to three other methods. In addition to these three methods, Mr. McElroy suggested a fourth method, to which I have referred in my present deposition at the top of page 223 of the printed record.

No other method occurs to me at the moment.

For convenience, I will repeat them in order already stated, and will give as the fifth method the method of the method patent in suit.

1. The blank of Fig. 1 of the box patent in suit might be made entirely by hand. The wires might first be cut the proper length. A pair of cleats might be assembled [fol. 363] by hand with a side sheet and the wires placed above the side sheet, and the staples driven with a hammer. Then the second side sheet and its cleats could be put in place and the wires stapled to them in the same way. This procedure could be followed until the blank was completed.

2. Another way would be to have an individual former to aid in the hand manufacture, by means of which a pair of cleats with an overlying sheet could be assembled and held in place and then attaching the wires by a hammer, driving the staples. The same former might be used in succession in connection with the remaining side sheets and cleats.

3. The Rosback method could be followed. That is to say, start with two long strips of wood the whole length of the blank and with a single overlying sheet of thin material. The thin material could then be stapled to the long strips of wood. Thereafter cutters could be employed which would form the cleat ends, trim off the ends of the sheet material and cut the sheet material through so as to form the separated side sheets. This is indicated in Plaintiffs' Exhibit Browne's Sketch of Modified Rosback Method (post, page 568).

4. Start with four separate side sheets, preformed to proper dimensions. Use with these the long Rosback cleat strips. Staple the sheets and cleat strips together with wires. Then shape the cleats by forming the ends and cutting the long strips across to make the individual cleats.

5. Follow the method of the method patent in suit, which is briefly to start with preformed cleats; place them end to end in proper foldable relation. Assemble the preformed side sheets in proper relation to the cleats. Staple the binding wires to the sheets and cleats. Then as a particular feature, so attach the staples at a distance from the edges of the sheets, so as to leave strands of the wire extending across the joint between adjacent side sheets so as to progressively tension the wires as the box sides shift relatively to each other under distorting strains.

X Q. 130. Please indicate which of these methods you know have been used in production of "4 One Blanks"—that is, blanks like the plaintiffs'?

A. The only method which I have seen in operation is the fifth method, which is the one of the method patent in suit.

It is true that Greenstreet 547,486 teaches the assembling and wiring together of the separate elements to pro- [fol. 364] duce a flexible box blank. This is also true of

Howenstine 453,479 and Healy 703,123. Considering the box in its final form I consider that twisting the ends of the wires together after the box is filled is part of the method of making the box.

X Q. 135. Would you say that tying the strings or cords of a bath robe is a part of the method of making bath robes?

A. No.

X Q. 136. Why not if it is a part of the method of making boxes to twist the ends of the wires together?

A. Because the box is a complete thing, and to adequately act as a container for goods to be transported requires that the box should be adequately closed. That is the ultimate aim and purpose of a box. On the other hand, a bath robe can be used without the cord. In fact, with my own bath robe I have long since discarded the cord.

X Q. 137. If a container is not complete until it is in shape to be "adequately closed" in such manner that it can be "transported," then I suppose your view is that a trunk is not finished until it is locked; is that it?

A. So far as the manufacturer is concerned, the trunk is finished before it is locked. But I should not care to ship valuable goods in a trunk without locking it. Still, however, I do not see how this illustration is of very much value in considering the merits of a wirebound box, because they are not exhibited until the final completion of the box by twisting the wires together. A trunk is an article which may be used over and over again indefinitely, whereas a wirebound box is substantially limited in practice to a single use.

So far as the manufacturer is concerned the box blank is finished before it is locked, meaning by the term "locked" before twisting of the ends of the wires together.

There is nothing in the patent in suit, 1,128,144, about the method of converting blanks into boxes except in so far as it says at the outset that the invention relates to the manufacture of wirebound boxes at page 1, line 10; and at page 2, line 54, it refers to the folding of the blank.

At the time that patent was applied for the term "wirebound box" was a known and specific term and it was understood how such wirebound boxes were to be completed.

X Q. 142. You haven't overlooked, have you, the specific description of how the blank was to be folded, e. g., "the [fol. 365] folding of the blank in which one sheet edge is forced under an adjacent overlapped margin, puts the wires under heavy tension and holds them thus tensioned to maintain the overlapping sheets at the corner firmly held and tightly closed." Do you know of any box except the box of the reissue patent to which this language would be applicable?

A. This passage is the one beginning at line 54, page 2, to which I referred in my next preceding answer. I understood that it does refer to such a box as shown in the Inwood & Lavenberg reissue patent. Indeed, I believe I have already called attention to the close proximity of the filing date of this carriage and former patent with that of the original Inwood & Lavenberg box patent. I suppose that this carriage and former was gotten up for the purpose of making such a box as is shown in the reissue patent in suit. I don't know of any other box in existence at the date of the filing of this application for the Inwood & Lavenberg carriage and former patent to which this language would be applicable.

It is true that the claims of the workholder patent in suit 1,128,144 repeatedly use such terms as "wirebound boxes" and use such language as "for use in assembling box parts to be folded and secured together to form boxes."

X Q. 144. Now you do not think, do you, that any man familiar with this art in the year 1901 and having read the Rosback patent and the others which we have been discussing and then having read and thoroughly understood the box patent in suit or the original upon which this was reissued and having also read and understood this workholder patent in suit, would have the slightest difficulty in visualizing the method described in the method patent nor in fact could commercially speaking conceive of any other method than that one?

A. Of course, a person having read the Inwood & Lavenberg box patent, also the carriage and former patent, would have disclosed to him the method of the method patent. However, until he had tried out the method by practicing with the carriage and former, he might still think that the more economical way of making the box might be by fol-

lowing the Rosback method, modified, of course, to make the box of the box patent.

I would not use the workholder patent in practicing the Rosback method.

X Q. 146. Then your previous answer pivoted on the word "economical," did it?

A. Perhaps my answer was somewhat cryptic. Your [fol. 366] X Q. 144 asked whether anyone with the knowledge mentioned in the question "could commercially speaking conceive of any other method" than that which would be practiced by following the teachings of the carriage and former patent in suit in producing the box of the box patent in suit.

I think that a person in 1904 might have conceived that a more commercial way of making the box might be to use the Rosback method modified as illustrated in Plaintiffs' Exhibit Browne's Sketch of Modified Rosback Method.

It could not be told in advance whether this modified Rosback method or the method of manufacturing using the carriage and former would be the more commercial or the more economical.

I will admit that it would at least have been evident looking at the drawings of the workholder patent in which the sheets are shown to be of separate pieces, that the method described in the method patent was a possibility.

X Q. 148. Do you think that a man familiar with the wire-bound industry as it existed in 1904 would have needed any further teachings than what he found in the expired box patent in suit and this workholder patent in suit and the then prior art patents, to acquire substantially everything that is taught in the method patent?

A. No.

X Q. 149. The method of converting the blank into a box is shown in the expired reissue patent, isn't it?

A. Yes.

The wire must be put on so that it will bind the box in order to produce an effective wirebound box blank for conversion into a box. The expired reissue patent in suit and the method patent in suit both show the eight-cleated blank as a transitory step in the method of producing the finished box and this full cleated blank thus employed as the transitory step is capable of use alone without any heads or end

walls. I do not know of any practice wherein cleatless blanks are used, nor do I know of any wirebound construction in practice wholly devoid of cleats.

X Q. 154. In making wirebound boxes by the semi-cleatless blank method, as by using defendant's blanks as a transitory step, the cleated heads or end walls are absolutely necessary, are they not?

A. As heretofore suggested, I think that I answered a question of the same sort yesterday without sufficient reflection. I am inclined to think that a blank such as shown in Fig. 1 of the Craig patent No. 1,208,297 could be used as [fol. 367] an effective container for a single large can of the proper dimensions to be retained by such a container.

X Q. 155. And it is also true that Howenstine's semi-cleatless box blank cannot be used in his method of making the box except in conjunction with his cleated heads, isn't it?

A. Howenstine's blank such as would exist without the ends and the cleats attached to the ends might be called a hemi-semi-cleated blank, and I do not think it could be usefully employed in that condition as a container.

X Q. 156. Does the cleatless blank method, as disclosed in Greenstreet No. 547,486 and No. 579,574 involve the wiring together of the four separate sections of the blank in such a manner that their co-operation in the finished flexible blank, and finally in the box, are predetermined?

A. That is true of the Greenstreet patent No. 547,486 but not necessarily true of the Greenstreet patent No. 579,574. Nor would it necessarily be true in the modification suggested in Greenstreet patent No. 547,486 with the extra thick corner pieces omitted.

The sections must be spaced a distance at their edges so that they will fold properly.

X Q. 158. Assuming that the thickness of each box side is a quarter of an inch and that they are connected by wires to form a box blank, does the method patent in suit describe the formation of a box by the aid of such a blank if the box sides are spaced an eighth of an inch apart?

A. Those particular dimensions are not specified in the method patent in suit. Nevertheless, if with such dimensions the wires could cut into the material sufficiently a box might be made in accordance with the method patent and the sides could be folded into box form.

X Q. 159. Please assume the same question, but with the box sides spaced a quarter of an inch apart?

A. Yes, the method could be used in making a box under these conditions.

X Q. 160. Please assume the same question, but with the box sections spaced three-eighths of an inch apart.

A. Yes, so far as the principal features of the method are concerned, although all of the advantages obtainable by the method would not be secured.

X Q. 161. Please assume the same question, but with the box sections spaced half an inch apart?

A. Yes, even a box like this might be made by pursuing [fol. 368] some of the features of the patent, though here there might be some question as to the utility of the box.

X Q. 162. Please answer the same question, but with the box sides or sections spaced five-eighths of an inch apart and also three-quarters of an inch apart?

A. I would say that we are here approaching a condition where the box parts would not be connected in a foldable relation such as would produce an efficient box. Nevertheless, assuming that the subsequent steps in the manufacture of the box would produce an effective box, I should say that the principal features would nevertheless be utilized.

Indeed, you might carry your progressive separation so far as to omit half of the cleats, nevertheless the method would be practiced so long as the cleats and side sheets were assembled and secured in co-operative foldable relation so that in the finished box the substantial characteristics of a wirebound box would result.

The spacing apart of the sheet material is not an essential characteristic of the teachings of the method patent. The method might be carried out with the sheets abutting each other. The same is true if the sheets were a quarter of an inch thick and spaced an inch apart, provided that the resulting box was an efficient one. Possibly such a box might be efficient under some circumstances. Never having seen such a box I should have to inspect it before reaching a definite conclusion.

X Q. 166. Would a foldable box blank like the one supposed to be produced by practicing the method of the method patent in suit, but without tensioning of the wires conform to the teachings of the method patent in suit?

A. If the method patent in suit is followed to its best advantage it will result in the initial tensioning of the wires. Nevertheless, the method might be followed in producing a box in which there would be no initial tensioning of the wires.

X Q. 167. In accordance with your views the method of the method patent in suit might produce either a lapped corner box or an open corner box, and the wires might be tensioned or not tensioned; is that it?

A. Yes, so far as the fundamental characteristics of the method are concerned.

I have not attempted to qualify as a practical expert in distinction to a mechanical expert in this art.

X Q. 170. Now, pursuing this discussion of the method patent in suit, the cleatless blank method as disclosed in Greenstreet 547,486 and 579,574 produces a box with tight lapped corners, does it not?

[fol. 369] A. The patent shows this.

X Q. 171. And this cleatless wired blank method could obviously be used with the Ramsey cleated heads, couldn't it?

A. Yes.

X Q. 172. In the Chicago Mill & Lumber Company suit you objected to the Howenstine patent as an anticipation of the now expired reissued patent in suit on the ground that,

"The only box blank which the Howenstine patent specification thus describes is the blank comprising the four side-sections with the stiffening-rods and the two cleats which are secured to the lid. This blank is used with two ends, each of the ends comprising the two spaced wires h, the three spacing strips h' and the three cleats i. The box blank thus described by Howenstine has no resemblance to the Inwood and Lavenberg patent in the respects which I pointed out in the beginning of this discussion of the Howensteine patent."

Now, does the semi-cleatless blank method shown in this patent offer any possibility of use of the partially or semi-cleated blank alone, or must the heads be used in this method to produce a usable box?

A. The blank of this Howenstine patent could not be usefully employed by itself for any purpose which occurs to

me. The heads must be used in order to produce a usable box.

X Q. 173. Would it be anything more than obvious mechanical skill to use tongue and groove cleats in the Howenstine method?

A. No.

X Q. 174. Please refer to X Q. 122 and your answer. You say there is some uncertainty in the Howenstine specification as to the sequence in which he proceeds, but you say that the description would imply that the sides and bottom of the box were already in box form before the corresponding cleats were attached, and that the ends are first put in place, then the cleats are fastened to the front, back and bottom and then to the end walls. As a mechanical expert, don't you think this would be an absurd way to proceed and that the operator would have to have about six hands to proceed in such a manner?

A. Of course, when we are dealing with a Howenstine box we are dealing with an absurdity. Howenstine's whole scheme is irrational. Take, for example, his stiffening rods, with which he ostensibly starts out to get a strong box, and [fol. 370] then he winds up by fastening his lid in place by his swinging latch hooks k engaging cross pins n carried by the box ends. I suppose the rational way of making the Howenstine box would be to complete his ends by fastening the cleats for the front, bottom and back, to the ends and then after the box sides have been folded into box form these completed ends could be put in place and the staples i' could then be put in place, fastening the front, bottom, sides and back of the box to the box ends. Howenstine does not set forth any such mode of procedure.

So far as he does set forth a mode of procedure, he describes what I have already referred to. In my judgment, no practical box maker would ever try to make the Howenstine box.

Look again at his proposal to knock down his box. He proposes to draw out his end staples *i'* so as to detach the end walls from the cleats. He then proposes to reduce his front, bottom and rear of the box "to nearly flat surfaces by bending the rods *d* straight" (page 2, line 52), with the attendant serious danger of breaking his stiffening rods when he again tried to swing them up into box form.

I should say that Howenstine's sole contribution to the art was to show the art what not to do.

X Q. 175. It was the commonest thing in the world for a carpenter twenty years ago, or for that matter, probably 500 years ago, to stiffen a thin board by fastening a cleat to it; wouldn't you say so?

A. I should say that this was as old as Tut-ankh-amen.

I assume that Howenstine does not attach his cleats to the sides before wrapping them around the box ends because it was Howenstine's business to explain how he made this box. He nowhere states that he attaches his cleats before he folds his front, bottom and back into box form. On the contrary, he is quite explicit that he does it the other way. He doubtless appreciated some of the difficulties of his box and so postponed attachment of the cleats until his box was folded into box form. That is found in the specification beginning at page 1, line 98. I have already quoted this passage.

X Q. 178. And this is the only justification you have for your understanding of that part of Howenstine's method?

A. Yes, that is all Howenstine says. It was his business to tell what he did, and that is how he tells it.

X Q. 179. Your interpretation of the meaning of that [fol. 371] part of the Howenstine description is opposite to my own, but I would ask you which of the staples $i'$ or $i^2$ are driven first in making the Howenstine box?

A. According to this description, the staples $i'$ are driven first. As I pointed out, however, when he knocks down his box and remakes it, he does not disturb his staples $i^2$, so that then his staples $i'$ are driven last.

X Q. 180. The staples $i'$, which you say are driven first, attach the sheets to the cleats, don't they?

A. Yes.

X Q. 181. In Fuller 690,116 and 694,457, the cleats for the product are preformed, are they not, instead of being formed after they are attached?

A. I assume by "cleats" you mean the parts of the basket cover which Fuller calls "end segments P, P" at page 2, line 61, of the earlier Fuller patent, and which he calls "segments K" at page 1, line 90, of the second Fuller patent. On this understanding I answer the question in the affirmative.

X Q. 182. And this is true also of Walker 763,579 and 767,613, is it not?

A. Yes.

X Q. 183. And in Walker the flexible blank is foldable into box form because of the predetermined relationship of the cleats and sheets; is that true?

A. Yes.

X Q. 184. In Hamilton 373,828 and in Howenstine and in Healy 768,123, the method of making the blank involves careful and predetermined positioning of the side sheets so that they will fold properly into predetermined relationship in the ultimate box; isn't that so?

A. Yes.

X Q. 185. And this necessity involves a careful predetermined relation of the cleats, does it not, so that they will fall in their proper places in the ultimate box?

A. Yes, as to Hamilton and Healy; no as to Howenstine. As to Howenstine, this would be true of the cleats on his lid, although, as I have heretofore said, it is by no means certain that Howenstine applies his lid until after the rest of the box is completed. As a matter of fact, his description of his lid occurs after he has otherwise finished his box.

X Q. 186. But you have said that Howenstine drives his staples *i'* first and that he first fastens the sheets to the cleats. Would these staples not have to be driven so as to produce a careful positioning of the sheets relatively to the cleats in order to enable the parts to fold properly?

[fol. 372] A. No, because Howenstine's box has been folded before his staples *i'* are driven, so that the attachment of these cleats has nothing whatever to do with the folding of the box as a method of procedure.

X Q. 187. Well, then, you admit, at least as to Howenstine and Healy, that the method necessarily involves a careful predetermined relation of the cleats so that they will fall in their proper places in the ultimate box. And this is true not only of the sides of the box blank, but is true of comparing one end of a section with the other end of the same section, isn't it?

A. Yes, and this is especially true of Healy, who has got to accurately space his undercut cleats with respect to their companion cleats so as to provide dove-tailed grooves to hold the ends.

X Q. 188. In fact, the method of making any flexible box blank by wiring or otherwise flexibly connecting parts together necessarily involves the predetermining of the shape and form of all the parts, and the predetermining of the relation between the parts, in order to insure proper folding of the blank into the ultimate box; isn't this true?

A. Yes. The form of this present question, using the word "wiring," which happened to strike my ear today, reminds me that yesterday, in answering X Q. 132 and X Q. 133, I did not have in mind that your question X Q. 131, which used the word "wiring" in connection with the Greenstreet patent was carried over into X Q. 133, referring to the Healy patent. Of course, Healy uses no wires, but instead has flexible metallic straps.

X Q. 189. But we are agreed, aren't we, that Greenstreet 547,486 teaches that wires may be used instead of straps, and vice versa?

A. Yes, in Greenstreet's box, but it has no effect upon the Healy disclosure, wherein his flexible metallic straps constitute the vital feature of his invention as appears from the specification, which says:

"The object of the invention is to provide a folding box or crate with flexible straps to which all four sides are connected at or near their ends, said straps having integral folded loops at one end, through which their other ends are adapted to be passed and then bent over to secure the box in its extended or operative position."

X Q. 190. And the quoted paragraph is your justification, is it, for thinking that the essence of the Healy invention is straps as distinguished from wires when manifestly [fol. 373] it is easier to make a loop in a wire than it is in a strap?

A. It may be easier to make a loop in a wire than in a strap, but not for the purpose of getting the sort of loop which Healy discloses.

X Q. 191. But Greenstreet does teach, does he not, that for general purposes in this art, straps and wires are proper substitutes, one for the other?

A. No. He teaches nothing of the sort. What he does teach is that with his particular box formation, having slats nailed to the box ends, either wires or straps may

be used at the intermediate portions of the box as a way for initially uniting the slats to form a fabric. He teaches nothing as to the general applicability of using wires or straps indiscriminately in all situations. Let the defendant herein try straps in its box, and it will discover whether they are proper substitutes for the wires.

X Q. 192. Is the last sentence a permission or a threat?

A. Neither; it is a suggestion.

X Q. 193. Thank you. I will admit that some people learn easier than others, and that a given disclosure may mean more to one man than to another. In my question I did not suggest that straps could be substituted for wires under any and all conditions in any and all arts. I was talking about the particular art we have before us; but do you wish to be understood as saying that the Greenstreet patent does not suggest anything to you along the line of a substitution of a strap for a wire or vice versa in the manufacture of wirebound boxes?

A. I quite agree with you that a given disclosure may mean more to a man in 1923 than to another in 1895.

So far as Greenstreet's disclosure is concerned, it is to the effect that straps and wires can be used with equal facility and with equal advantage in his particular sort of box. But, when it comes to the further proposition, that straps and wires can be used with equal efficiency in all sorts of boxes, I repeat the suggestion which I made as to substituting straps for wires in either the defendant's boxes or the plaintiff's boxes. A trial would demonstrate that straps and wires do not act the same way in this type of box and are not indiscriminate substitutes for each other.

X Q. 194. Please assume the same question, but limit it to a date subsequent to the issue of all of the Rosback patents set up in the answer and prior to the date of application for the earliest patent in suit and limit it to the wirebound box industry. Please also import into the question, if you can, whether it would, in view of the teach- [fol. 374] ings of Greenstreet and others, involve anything more than selection to substitute a wire for a strap in this industry at the date mentioned, that is, prior to the filing of the application of the earliest patent in suit?

A. It would.

X Q. 195. You mean it would involve invention?

A. Yes.

X Q. 196. In spite of the teachings of the Greenstreet patent?

A. Yes, I should say that the Greenstreet patent is the very best illustration of the fact that invention was required. Greenstreet teaches that there is no difference between straps and wires for this purpose. For the purpose of a wirebound box, straps and wires are as far apart as east is from the west.

X Q. 197. But he shows wires which project at both ends of the blank and which can be twisted together, doesn't he?

A. Greenstreet?

X Q. 198. Yes.

A. There is no suggestion of anything of the sort in Greenstreet. On the contrary, he makes special provision for a flap on the cover to hang over the top slat on the front of the box for the purpose of nailing the two together. As I have already pointed out, by reason of this construction, Greenstreet's wires, even if they did project, could not be usefully employed for having their ends twisted together to fasten the box. The projecting ends of the wire (if any) at the upper edge of the box front would be entirely concealed and covered by the flap and would not be accessible.

X Q. 199. But at least one end of the wire in Greenstreet could be wrapped around the wire near the other end, couldn't it, below the flap, and in that sense secure the ends of the wires together?

By Mr. Janney: Obviously this line of examination calls more for argument than for statements of fact or opinion. If defendant's counsel wishes to engage the witness in an argument, I have no objection. But it seems quite inappropriate.

A. I do not see how it could be done without the employment of some peculiar tool especially designed for the purpose. Greenstreet makes no such suggestion himself. Indeed, when one considers the modification shown in Figs. 3 and 4 in the Greenstreet patent wherein, as now seen in 1923, that twisting of the ends would be a very simple expedient, nevertheless Greenstreet there employs a whole [fol. 375] string of special metal fastenings indicated by D.

X Q. 200. You are not overlooking the fact, are you, that it has been repeatedly brought out in this record that Rosback teaches the idea of closing the box by twisting the ends of wire together?

A. I have not overlooked it.

X Q. 201. Then please do not limit your previous answer to 1895, but to 1903.

A. The record shows that a good many people were working in the box art after Greenstreet and before Inwood and Lavenberg, yet when Healy came along, just ahead of Inwood and Lavenberg, he did not use wires, but, on the contrary, starts out with the statement that his object is to use straps. Accordingly, I would say that it was not obvious for a skilled box mechanic with the resources of his art in 1903 or 1904 to know how to produce the box of the Inwood and Lavenberg reissue patent or how to practice the method of the Inwood and Lavenberg method patent.

When they are in the work conveying mechanism the cleats K in Fuller 694,467 extend longitudinally in two parallel rows so far as curved surfaces can appropriately be called parallel. Of course, the several groups of materials constituting the individual basket tops as they progress through the work conveying and presenting mechanism have nothing to do with each other, and never have anything to do with each other.

X Q. 204. You object to Walker 763,579 because, for one thing the "lid sections are never cleated at any stage in the Walker method"—and now do you mean that the lid sections of the blank must have cleats in order to be within the method patent in suit?

A. I never said I objected to Walker. The Walker folding crate is a berry box, and may be very good for his purpose. Whatever may be said about Walker, the vital thing so far as plaintiffs' patents are concerned is that he doesn't have a wirebound box and doesn't pretend to have one. Ultimately in the finished wirebound box there must be cleats on the cover. Just at present it seems to me also that there should be cleats on the cover when the blank is in the flat. At any rate, I should have to examine the completed box made without any cleats being put on the cover in the flat blank before I could express a final opinion.

It is true that in the disclosed method cleats are attached to the cover section before the blank is folded in box form. [fol. 376] There is an inter-relation of cleat ends in the Rosback patent, the Howenstine patent and in Ramsey, particularly so in Ramsey, where Ramsey interlocks his cleats by a projecting tongue on the beveled end of one cleat fitting into a recess on the beveled end of the neighboring cleat and thereby preventing the displacement of any cleat in any direction except that in which it was fitted in the first place.

Howenstine performed cleats can be made of cheap scrap material or short pieces as distinguished from the long strips of Rosback.

X Q. 207. In what way do the "raw materials" of the Inwood and Lavenberg patents in suit differ from the raw materials from which Howenstine made his blank?

By Mr. Janney: Defendant's counsel is requested to enumerate on the record all of the different elements which he includes in the expression "raw materials."

By Mr. Cox: The witness may confine his answer to the cleats, sheets and box ends.

A. Howenstine says, regarding the sides of the box, that they "are made of one or more thin pieces of board cut of proper and equal width and length, the grain of the material when two or more pieces are used being crossed at a right angle in these pieces, so that when they are united they will mutually stiffen each other and prevent warping of the material." (Page 1, line 41.) He shows in his drawings the construction of the lid, front, back and bottom of the box of two layers of material.

This furnishes an especially strong material for the box sides, which is of particular importance in a nailed box, which is what Howenstine's finished box in effect is. That is to say, the ultimate strength of the box against distorting strains depends upon the strength of the wood.

While Howenstine suggests that a single piece can be used, I gather that he intends that the single piece shall be of such selected material as to be equally strong with the built-up sides.

On the contrary, in the wirebound boxes of plaintiffs' and defendant's manufacture, the cheapest grade of wood, of minimum thickness, can be used, since the ultimate

strength of the box is dependent upon the wires and not upon the wood. Likewise, Howenstine shows his box ends made up of several pieces of material, each end wall being preferably made of two sheets of material with vertical spacing strips, three in number, between them. Howenstine suggests that a single piece of wood can be used for [fol. 377] each end, but evidently wood of very good material and thickness must be employed, since the two ends carry the fastening pins *m*, with which the swinging hooks on the lid coact. This is Howenstine's sole provision to keep the lid in place, and hence the ends must be made of stout material, if a single piece of thickness, in order to withstand the rough usage to which a shipping box is subjected.

Howenstine does not say anything about any special material for his cleats, and they might be made, so far as I can see, from the same sort of materials that are used in defendant's and plaintiffs' boxes.

[Because of an error in numbering, there was no cross-question numbered 208.]

X Q. 209. If Howenstine had these wires that could be twisted together at the ends, and had so twisted them together, as taught by Rosback, then at least the sheets and cleats could have been made of the same sheet material as in plaintiffs' and defendant's boxes?

A. No.

In such case the box would not have been dependent for its strength chiefly on the wires. The box would still be dependent for its strength on the stapling of the ends of the wood sides to the corresponding cleats. I regard Howenstine as a nailed box in spite of the fact that it has sheets, cleats and at least three sides overlaid by wires and the further fact that the box shows no nails at all but staples. The staples simply act as nails in the Howenstine box.

X Q. 212. Then a staple becomes a nail once you twist the ends of the wires together in boxes of this kind; is that about it?

A. I see no connection between the first and last parts of your question.

X Q. 213. Well, if a box with sheets and cleats and end walls is a nailed box when it employs staples, and the chief

other distinction is that the ends of the wires are not twisted together, it is fair to make the assumption I made, is it not, from your previous answer?

A. No. The box of the patent in suit does not act like a nailed box. In a nailed box (whether the nails have a single shank or two shanks as in a staple) the ultimate strength of the box is dependent upon the wood; that is to say, it will break either by pulling the nails or staples out of their anchorage in the wood, or the wood will give way where the nails or staples go through. On the contrary, in the box of the reissue patent in suit, the ultimate strength of the box is dependent on the wires. Under dis- [fol. 378] torting strains the sides can move relatively to each other, carrying the cleats with them, so that the strain does not come upon the staples or upon the wood, but upon the wires.

X Q. 214. Don't you think it makes any difference whether nails have one shank or two shanks, as in a staple, in this box-making art or this wirebound box art?

A. Yes, in many respects staples have utility which nails do not possess. For example, in securing the wires to the sheets and cleats in the plaintiffs' and defendant's boxes nails cannot be used. Staples are used, and this has a particular advantage in the progressive tensioning of the wires; under distorting strains on the box there is some opportunity for the wires to slip between the legs of the staples.

But when it comes merely to the question of fastening one piece of wood to another piece of wood (as Howenstine does when he fastens his box ends to his box sides), then any advantage would lie rather on the side of the nails than on the staples.

X Q. 215. Please look at Averill No. 661,481 and note the headed nails therein shown, especially in Figure 3. Please assume that instead of employing staples in the box of plaintiffs' expired patent two of such headed nails were employed, located close to the wire on opposite sides and with their heads overlapping the wires. Would there then be any distinction between nails and staples?

A. Yes. The arrangement of the nails would be futile and impractical. The arrangement of the staples is feasible, practical and useful.

X Q. 216. Two nails thus driven on opposite sides of a wire, close to it and with both heads engaging the wire, would probably hold better than a staple, would they not?

A. No; not so well. The wire could slip out.

X Q. 217. If the heads overlapped from opposite sides, it could not slip out without pulling out one or both of the nails, could it?

A. That is what might happen. One nail is twice as easy to pull out as two nails. If one of your nails got loose, the wire would get out. With a staple both legs have got to pull all the way out in order to leave the wire free sidewise. In your construction if either nail head got just loose enough to free the wire, then the wire could get out.

Also, this discussion started with Averill, and I wish again to call attention to the fact that Averill's nails have nothing to do with holding his wires in place. Averill's slats have holes made in them through which the wires are fol. 379] strung in a good deal the same way as an old-fashioned shoemaker punches a hole in the leather with his awl and then draws two threads through in opposite directions. That is the way Averill works.

Averill having recognized that these holes weakened his slats, and that driving his nails would still further weaken his slats, says that he drives his nails through his wire-threading holes, thereby avoiding making any more holes. This is what he says, beginning at line 17, page 2, at which point the statement is made that the nails

"are passed through the perforations formed for the wires, and by utilizing these perforations the woof members are not weakened at other points by perforations for such fastening devices."

Accordingly, Averill's nail heads have nothing whatever to do with holding the wires in place. They are already strung through holes in the wood.

X Q. 218. Would it involve anything more than mechanical skill and ordinary common sense to use such raw materials in the Healy box blank as are shown, for example, in the Walker patents, Nos. 763,579 and 767,613?

A. I cannot possibly see how anybody, in order to make the Healy box and carry out Healy's object, would ever think of studying the Walker patents for the purpose of

getting any information as to how to go ahead. Walker was driving after one sort of thing and Healy after an entirely different thing.

X Q. 219. Well, regarding the cheapness of materials, there were plenty of patents in the prior art, were there not, that showed short cleats and individual sheets that could have been of cheap material?

A. Yes. There are only twenty-six letters of the alphabet, and if you put them together in the right order you get Milton's Sonnet on his Blindness.

X Q. 220. And the inference is that the expired Inwood & Lavenberg patent stands in the same class as the sonnet?

A. I would not like to put Inwood & Lavenberg into the same rank, but I venture to say that more Inwood & Lavenberg boxes have been sold than have ever been sold copies of Milton's poems.

X Q. 221. The spacer block method shown and described in the method patent in suit is not, according to your view, disclosed in the expired reissue patent, but is found in patent No. 1,128,144; is this correct?

A. Yes.

X Q. 222. Suppose in the expired patent in suit the cleats [fol. 380] are all first secured to their respective sheets and that the cleated sections thus formed are thereafter wired together, would that be still a different method?

A. Yes.

X Q. 223. Greenstreet, No. 652,357, says, lines 7 to 34, page 3, that:

"In slatted box-stock it is often desirable to supplement the slat-wires by longitudinal cleats or runners. In order, therefore, that such cleats may be attached to the slats by the same staples with which the slat-wires are attached, and at the same time I secure to the forward end of feed-table 24 one or more cleat guides 97, each so arranged as to direct its cleat beneath one of these staple drivers. Above each cleat-guide, in position to engage the cleat, I mount a serrated feed-wheel 98. If feed-wheel 98 is loosely mounted on a shaft 99 and is provided with a clutch member 100, adapted to be engaged by a similar clutch member 101 carried by the shaft these two clutch members are normally held in engagement by means of a spring 102, and

their arrangement is such as to allow such rotation of the feed-roll as to permit the introduction of a cleat without removing the other portions of the machine. Shaft 39 is provided at one end with a sprocket-wheel 103, receiving a chain 104, which is also passed over a sprocket-wheel 105, carried by shaft 87, the cleats being thus advanced with the same speed and at the times as the receiving chains and slats engaged thereby."

This shows the driving of staples through preformed separate sheets to secure binding wires to cleats, does it not?

A. No. What Greenstreet refers to in this passage as "longitudinal cleats or runners" is a sort of stay material, which he shows at E, box patent 722,423, March 10, 1903, which was copending with the application for the patent from which you quoted. This so-called longitudinal cleat or runner is at some distance from the ends of the slats as shown in Greenstreet's box patent and the so-called cleat guides 97 of the Greenstreet machine patent 652,357, are properly located with reference to the slat hopper 26, Figure 2, so as to secure this location of the runner in the position shown in the box patent.

In other words, I answer this question in the negative because, when Greenstreet is talking about "runners" or "cleats," he is talking about something entirely different from what we have been heretofore calling cleats in connection with boxes.

[fol. 381] As explained in the Greenstreet box patent 722,423, the runners or stays or expansion strips E are of wood and their purpose is to hold the slats apart in the event that the wires kink.

I quote from the specification of this Greenstreet box patent, beginning at line 48, page 1, as follows:

"As thus far described, the fabric is not new; but I have found in practice that the wires B are apt to kink up or buckle between the staples and injure the looks of the fabric, as well as change its longitudinal dimensions. To remedy this I have been led to combine with the fabric a stay or expansion-strip E of wood, which is laid transversely of the slats parallel with the wires and stapled to the slats by the wire-securing staples C. This stay or ex-

pansion-strip holds the slats at the relative positions they occupy when they are first secured to the wires and keeps the wires extended or drawn out to their full lengths, thus avoiding the kinking or buckling referred to."

Moreover, further on it says that they serve to prevent buckling of the wires caused by the shrinking of veneer

Moreover, this Greenstreet box patent says that those stays or expansion strips "are preferably of light stuff and may be even thinner than the slats themselves." That is at page 1, line 74. The Greenstreet machine patent does in the passage you quoted refer to uniting the wire, the slats and the underlying runner at the same operation and by the same staples.

I will explain the term "progressively tensioned" as used in my rebuttal deposition.

When a distorting strain is applied to the box of the Inwood & Lavenberg reissue patent, the side sheets slide longitudinally with respect to each other, carrying the cleats with them and as a result an increasing strain is brought upon the wires. Initially, with the box in its normal position, there is tension on the wires, and this tension becomes greater and greater as the distortion increases. Ultimately, if the strain is continued beyond the power of the wire to withstand it, either the wires will untwist or will break.

By that expression I simply mean that as the distortion increases the tension on the wires increases.

X Q. 226. In Greenstreet 547,486, the four separate preformed side sections are spaced apart a distance to form lapped corners for the box. Will this cause the wires to cut into the corners of the sections when the blank is folded? [fol. 382] A. The Greenstreet specification says that the space between the meeting slats of the two sides of the box "will be equal to the thickness of the side slats, so as to admit of their being brought into position at right angles to each other in forming the corners." That is at page 1, line 85. I do not think there would be any substantial cutting into the edges of the box, though there might be a little, due, as I have heretofore stated, to the circumstances that when a wire is bent its outside has a longer arc than its inside, hence tending to establish an inward contraction at

the bend which would be resisted by the wood slats at the box corners, thus perhaps involving a very slight cutting in or embedding, though perhaps the effect would rather be exhibited in bending the slats themselves since the wires are located around the box at substantial distances from the box ends.

That action will tension the wires at the corners somewhat. In Greenstreet 547,486 the space edges of the sections A-1 predetermine the particular points at which the fabric shall be folded. Greenstreet 579,574 states that one-piece sides may be used for the light sides instead of the multiple slat sides used for crates; though perhaps the patent puts forth this idea rather as a project than as an accomplished fact.

X Q. 230. Is it true that according to the procedure of Howenstine, every dimension of the prospective box is definitely predetermined before cleats or sheets are prepared; that by reason of the preforming of sheets and cleats and the assembling and wiring thereof in predetermined relationship, the precise dimensions, shaping and character of the finished boxes are explicitly predetermined, and however many times the box may be folded or unfolded, the operator can always reproduce the result, and his procedure in forming the box is indicated to him by the box parts themselves and their predetermined relationship; that, in short, the Howenstine procedure begins at a definite starting point, leading to a predetermined result, and all the intermediate steps contribute to that result?

A. I should say so, except that I do not think he could knock down the box and reproduce it very many times. His stiffening wires would soon break and there would be a limit to the number of times he could drive in staples and pull them out.

X Q. 231. Except as to the breaking of the wires or destroying the wood by pulling and reinserting staples, the same is substantially true of Rosback, is it not?

A. No, I do not think this is true of Rosback. Of course, [fol. 383] Rosback starts with the idea of producing a particular size of box. But as long as his sheet material and his cleat lengths are long enough, they may be in excess of what was actually needed since the longitudinal dimensions of the blank are determined by his cross-sawing.

It is the location of h[illegible] saws which determin the proportions of his box sides to each other and not h selection of materials.

Also, in Howenstine his hooked ended stiffening re must be pre-formed to definite lengths suitable to the si of box intended, whereas Ro-back uses wires of indefini length, cutting the wires off after the stapling has be finished.

X Q. 232. Will you answer the same question with r spect to Hamilton, No. 273,828?

A. These Hamilton wires, slats and cleats must be in ially selected of proper dimensions in order to make a be of a given size. I presume that Hamilton might weave slat fabric of indefinite length and then cut it up into se tions of the length necessary for making a particular size box.

X Q. 233. And, in addition, the procedure begins at definite starting point and leads to a predetermined resu and the intermediate steps all contribute to that result, d they not?

A. Yes, with the qualification that the slatted fabric doe not have to be woven to any particular length. It might b woven to an indefinite length and then cut up into th lengths required for any particular box.

X Q. 234. Except for the wires, the same statements ma be made for J. P. Healy patent, No. 768,123?

A. Yes, with the additional circumstance that Healy als makes his flexible straps of the desired length initially an forms the box loop at one end thereof and punches holes i the strap for the nails to go through.

X Q. 235. Is it not true that particular significance at taches in the Healy method to the cleats which are alto gether lacking from the slatted fabrics referred to, also that each Healy cleat predetermines approximately the cor responding dimensions of the box and definitely prevent any folding or unfolding at any point intermediate the clea ends; also, that the relationship between the neighborin cleat ends determines the location of the box corners and prevents any occurrence of a box corner at any other point also, that the relationship between cleats for opposite and non-adjacent sides of the box not only predetermines ap [fol. 384] proximately the dimensions of those respectiv

had,—barring, of course, such light as Healy may have shed upon Inwood & Lavenberg. In any event, except for the tensioning of the wires, all the individual features which [fol. 385] Inwood & Lavenberg utilized were known prior to Healy."

The "tensioning" I speak of here is the tensioning of the wire at the corner as shown in Fig 4 of the now expired reissue patent in suit. Greenstreet 547,486 shows straight edged sheets and the square edges overlap when the blank is folded. Whether the wire would try to cut in at the corners in Greenstreet 722,423, would depend upon the space between the slats as compared with their thickness and it is difficult to reach any positive conclusion on account of the different scale of the Figures 1, 2 and 3, of the drawings. Also, the slats could bend under the strain, if any due to the bending. Certainly there is no notable or functional tensioning of the wires to which the specification draws attention. The specification is silent on the subject.

In my testimony in this case on rebuttal I said:

"And in my opinion the clear novelty of the Inwood & Lavenberg method invention resides in just this: That during the course of the method, twelve separate and independent cleats and side sheets are wired together in such relationships that their functional and structural co-operation in the finished wire-encircled flexible box are definitely and accurately predetermined,—regardless of the folding or unfolding of the blank."

This is not all true of the reissue patent in suit which expired last September. The reissue patent does not describe starting with twelve separate and independent cleats and side sections. As I have heretofore pointed out, the blank shown in Figure 1 of the reissue patent might have been otherwise produced, as, for example, by the modified Rosback method, as shown in Plaintiffs' Exhibit, Browne Sketch of Modified Rosback Method. Speaking briefly this so-called modified Rosback method is the same as the Rosback patent method except that you use an additional saw to saw through the sheets of veneer right up to the binding wire; instead of the scoring saw used by Rosback. There is also a re-arrangement of the saws so as to produce just what is shown in Figure 2 of Plaintiffs' Exhibit, Browne Sketch of Modified Rosback Patent. Given knowledge of

the Rosback machine and also the blank shown in Fig. 1 of the Inwood & Lavenberg reissue patent I think that this so-called modified Rosback method would have been obvious at the date of the original application of which the [fol. 386] method patent in suit is a division. I thought of it myself. As a mechanical expert I do not think that this suggested so-called modified Rosback method is a practical commercial method as compared with the method shown in the method patent in suit. If in this modified Rosback method there was any danger in the saw teeth engaging the wires after completely cutting through the wood, it would be an obvious thing to put a protecting strip across the line of cut. I had in mind a protecting strip of wood. I mean that I would insert a strip of wood between the outside surface of the sheet and the under part of the wire; or, rather, it would be put on in the first instance, before the wires were stapled. I don't know of any such method ever having been put into commercial use. I don't think any such system would have been put in after Inwood & Lavenberg had produced their method, which was evidently substantially concurrent with their production of the box. I don't think the so-called modified Rosback method is commercially practical today in competition with the method disclosed in the Inwood & Lavenberg method patent. In 1894, I think that the merits of the Inwood & Lavenberg box would have been such as to have justified the modified Rosback method as a commercial method in the absence of the invention of a better one. I do consider this so-called modified Rosback method a different one from the one described in the method patent in suit. Assuming the method patent in suit to be valid, I do not think that any person practicing this so-called Rosback method would be using the teachings of this method patent.

X Q. 252. Would the so-called modified Rosback method be a practical commercial one for a person who was not permitted to use the method of the method patent in suit?

A. That would depend upon a figuring of the costs. Assume that there was a royalty of x cents a box for the use of the Inwood & Lavenberg method and that it cost y cents to make the boxes by the modified Rosback method, then if x were greater than y, it would be an advantage to use the modified Rosback method.

X Q. 253. You haven't any idea whether in your last answer x would be larger or smaller than y?

A. No.

X Q. 254. Except as to the so-called modified Rosback method, your answer to my X Q. 241 would be yes, would it not?

A. No. There would still be open another method here- [fol. 387] tofore mentioned, namely, starting with the long cleats of Rosback with four individual sheets properly disposed above the cleats, and thereafter wiring the wires, sheets and cleats together, cutting the long cleats across by the Rosback method, making the cuts come where the sheets adjoin.

X Q. 255. In April, 1914, you know, do you not, that Inwood & Lavenberg in their so-called divisional application stated that:

"This invention relates to a combined carriage and former for use in the manufacture of box blanks and more especially to that class of box blanks wherein the cleat, sheet or board and a stay or reinforcing wire are stapled together, and while the same may be used to assemble and hold the various parts comprising the box blank to be operated upon or stapled by hand, the same is more especially adapted for use in connection with an automatic stapling machine, embodying mechanism for carrying the carriage through the machine, when brought into engagement with such mechanism, and disengaged therefrom when the operation of stapling is completed, thus allowing the use of a plurality of formers or carriages in connection with each stapling machine and the assembling of the box material and feeding by the carriages to the stapling machine in rapid order."

Farther on (line 8 to 12, page 5) the original application, while describing the formation and construction of the blank, set out the following:

"and the intervening space required between the cleat ends to allow a perfect mesh is dependent upon the thickness of the sheets or boards forming the sides of the box, the greater the thickness of such sheets the greater the intervening space between the cleats must be."

Farther on, in an effort to show the value and advantage of the portable workholders, the original application set out the following (lines 18 to 22, page 6):

"It is obvious that several carriages may be used for feeding the blanks to a single stapling machine, thus expediting the slow method of feeding the blanks to machines, where no portable or detachable carriages and formers are used."

[fol. 388] Again, in discussing the prior art, the original specification of this so-called divisional application set out the following (beginning with line 6, page 7):

"It has been the practice heretofore in the manufacture of wirebound boxes to assemble the cleats and sheets to be stapled in guides forming an integral part of the stapling machines, and the mechanisms co-operating with the stapling machine to contact with and slide the cleats longitudinally in their guides under the stapling devices, the guides remaining stationery."

In order that there may be no uncertainty about this, I will ask you, Mr. Browne, to take the certified copy of this Inwood & Lavenberg application as originally filed by them April 21, 1914, and see if the above quotations are correct?

A. I have made the comparison and the quotations are correct.

Regarding the preformed sheet and cleat methods employed by Healy, Archer and Howenstine, it is true that the cleats being in relatively small pieces are economical as compared with the long cleats necessary for the Rosback method. It is also true that the side sheets are formed in relatively small pieces instead of the larger pieces which are shown in the Rosback practice. Rosback teaches how to twist the ends of the wires together. This is also true of Averill.

X Q. 259. And would it not have been rather a stupid box mechanic, with all these patents before him, who would not see the obvious possibility of twisting the ends of Greenstreet's wires together?

A. Knudtson and Uhri, in their patent, No. 518,038, April 10, 1894, disclosed the completion of the wirebound box by twisting the ends of the wires together. I should not like

to characterize Greenstreet as a stupid mechanic who in his patent, No. 722,423, shows the same flap closure as in his patent No. 547,486.

X Q. 260. You know, don't you, that twisting the ends of the wires together as shown in Rosback and Averill, so that upstanding sharp points are formed, which are dangerous to freight handlers, has been objected to very seriously?

A. No. All that the user has to do is to tuck them in; that is to say, bend the twisted ends down against the side of the box.

With defendants' method the cleats are moved along in stationary guides. Also in these stationary guides as used [fol. 389] in the defendants' method, the cleats are pushed by lugs or flights on the two endless chains which carry the sheets in spaced relation, first, a cleated sheet and then a cleatless sheet, and the result is a semi-cleatless blank having two cleated sections which alternate with two cleatless sections with the staples clinched on the under surface of the cleatless sections. It is true that this same cleatless or semi-cleated blank is not, in itself, adapted for use as a box because the two cleatless sections are flexible and have no cleats to co-operate with those of the cleated sections to form rectangular frames to give the necessary rigidity; except that the semi-cleated blank could be used in connection with a can of corresponding size placed within it.

X Q. 264. Does the "Complainants' Exhibit 42" in the record of the Chicago Mill and Lumber Company case show "the result of flexible and progressive tensioning in a finished box"?

A. Yes.

X Q. 265. And is that all in the reissue patent in suit?

A. The reissue patent in suit has no picture in it like Complainants' Exhibit 42, but the box of the reissue patent acts under distortion in substantially the same way as is shown in Complainants' Exhibit No. 42, with the exception that the box patent shows each side as made of but a single sheet, whereas Exhibit No. 42 shows each side made of two pieces of sheet material.

X Q. 266. By using the alternate cleat method or the semi-cleatless method of making the blank, and by using the precleated head method, defendant herein produces a

blank which interlocks with the heads, so that the latter are locked in position, after the blank is folded around them, even though no staples or nails are inserted through the cleatless section into the cleats on the heads: is not that true?

A. Yes.

And with this method all of the setting up is done from the outside and no staples are driven from the inside to fasten the heads in place. In plaintiff's method the staples must be driven from the inside through the thin walls and into the cleats.

X Q. 269. Defendant can use either a cleated section or a cleatless section for the cover. You understand, do you not, that the users of boxes something do one and sometimes the other?

A. I do not know this.

With defendant's alternate cleat method and semi-cleatless method, there are only eight separate pieces which go [fol. 390] through the blank machine for each blank, assuming each section to be in one piece so that for a thousand semi-cleatless blanks of this kind, only four thousand cleats would go through the machine. In the specific illustration of the method and machine of the patents in suit eight thousand cleats would have to pass through the machine to produce the thousand blanks. I do not recall whether I observed how defendant does the cleating of the heads before they are ready for conjoint use with the semi-cleatness blanks.

X Q. 274. Well, you know, don't you, that with the defendant's method, four of the cleats reach the box or ultimate product over one road (with the blank), while four other cleats reach the ultimate product over another road (with the heads)?

A. Yes.

X Q. 275. But in the patents in suit all eight cleats take the same road and go with the blank to the place where the ultimate product is produced?

A. Yes, in the specific form shown.

X Q. 276. In the defendant's blank machine, through which only four thousand cleats pass for every one thousand blanks, the cleated sections travel one ahead of the other with a cleatless section between them, and nowhere are there any cleated sections adjacent each other, so that

there is room for the anvils or clinched blocks to enter between the cleats to clinch the staples on the under side of each cleatless section of the blank; this is a true statement, is not?

A. Yes.

X Q. 277. And nowhere in defendant's box-blank machine, while running, are there any cleats which are not flush at each end with the edges of the sheets, are there?

A. No.

X Q. 278. But in the patents in suit, all of the cleats therein shown travel through the blank machine with their ends necessarily set back from the edges of the sheets, so that the full cleated blanks thus produced will fold with lap corners; is that not true?

A. Yes, that is as shown.

X Q. 279. Then just twice as many cleats pass through plaintiffs' blank machine as pass through the defendant's blank machine?

A. Yes.

X Q. 280. And in the patents in suit it is the box-blank machine which establishes and fixes the exact relation of all of the cleats to each other, is it not?

A. Yes.

[fol. 391] X Q. 281. But with defendant's method only one half of the ultimate number of cleats passes through the blank machine?

A. Yes.

X Q. 282. And the other half of this ultimate number of cleats necessary for any given quantity of boxes might be made long before or long after the day on which the semi-cleatless blanks were made?

A. Yes.

X Q. 283. But in the patents in suit all of the cleats (necessary for any given quantity of boxes) must be on hand to pass through the blank machine?

A. Yes.

X Q. 284. In Howenstine 453,479, issued June 2, 1891, you say the only blank disclosed comprises the four side-sections with their wires and the two cleats which are secured to the lid. Now, the only side walls are the sections *a* and *a* and the top section *c* is the lid and the bottom *b* is the bottom of the box; is that correct?

front sheet *a* run horizontally and transverse to the uprights cleats *i*?

A. The drawing, Figure 1, does not give any indication of the direction of the grain of the wood. What Howenstine says is that his preferred plan is to make the sides, bottom and lid of two sheets of material, in which event the grain of the wood in these two sheets crosses at right angles to each other. The drawings illustrate each of the four side walls as built up of two cross grained sheets. There is no way of telling from Figure 1 whether the grain of the outside sheet or of the inside sheet runs vertically or horizontally. It might be either.

X Q. 288. Then you wish to be understood as saying that if you personally attempted to make the Howenstine box, you haven't the faintest notion as to how you would let the grain of the wood run even in the front sheet *a*; is that it?

A. In the first place, I would not try to make the Howenstine box. I would discard it on sight.

I think so little of the Howenstine box that I would decline, even upon request, to attempt to make one. In Howenstine the staple heads extend lengthwise of the vertical cleats *i*. No staples are shown extending through the horizontal bottom cleats *i* into the end walls *b*. Fig. 2 indicates staples driven through the lid *c* into the cleats *c'*. It would be my inference from the showing that similar staples are indicated as being inserted upward through the bottom *b* into the lower cleats *i*'. I do not think that the bottom cleats *i* are always secured to the bottom sections *b* and that the blank of Howenstine (produced by withdrawing the two vertical rows of staples *i*') has at least four cleats instead of two. There is nothing is the description of knocking down the box to indicate that only 2 3rds of the staples *i*' are withdrawn. The description is to withdraw all of the staples *i*'.

[fol. 393] X Q. 294. Reading from the Howenstine description, do you think that reference characters *i*' should have been applied to the staples which project downward from the bottom of the box at the ends of Figure 2 of the Howenstine patent?

A. I suppose that the downwardly projecting parts indicated are staples *i*', and this would have been unmistakable had the draftsman indicated them by the letter *i*'.

through holes in the slats would have very little strength. In the sense, however, that Averill does have wires extending all the way around the box, with their ends twisted together, it might be classified as a wirebound box, though substantially different from the box of the reissue patent in suit, because, functionally, so far as its withstanding strains is concerned, Averill's box acts like a nailed box.

X Q. 302. Well, as to strength, you note, do you not, that in line 69 Averill says, "It is desirable in practice to interlock the warp members" (by "warp members" he means the wires) with the slats by carrying them through the slats in the manner you have described. In view of this construction, even if the slats should split in the operation (although it is to be noted that he suggests that they be steamed to avoid splitting), they would, nevertheless, hang together with the full strength of the wires; isn't that true?

A. I do not know what the effect would be. In the construction shown in Figures 1, 2 and 3 of the drawings, each "woof member" or slat is wide enough to have the wires strung through it in several places, so that presumably the ends of the slat would not split through at all of the holes.

In the construction shown in Figure 4 Averill does not use his shoemaker sewing plan, but a weaving plan similar to that of the Hamilton patent No. 373,828; that is to say, the wires are not stapled to the slats, but wind in and out among them. The holding of the slats by the wires in this construction is frictional only when the fabric is in its flat form.

When the ends of this slatted fabric are nailed to the box ends, as shown in Figure 4, then the slats cannot slip out from the wire convolutions because restrained from longitudinal movement by being nailed to the opposite box ends.

For these reasons my answer is in the negative.

X Q. 303. Averill teaches the tensioning of the wires, does he not? Note, for example, page 1, commencing in line 91, where he says that the wires "may be put under sufficient tension, while the material of the slats is soft, to embed the wires therein"?

A. Yes. He is here referring to his peculiar way of connecting his wires and slats by softening the slats by

[fol. 395] steam. In the portion of the specification to which you refer he is calling attention to the fact that if, during this sewing method of his, a sufficient tension is put upon the wires, it will enable them to embed themselves in the slats softened by steam.

It does not mention any tensioning of the wires when he folds his fabric around the box ends, at which time there would be a slackening of the wires rather than a tensioning of them at the bends.

X Q. 304. If you wanted to convert the Howenstine to a one-time box, all you would have to do would be to twist the ends of the wires together, and that would ruin the box for use again, would it not?

A. It seems to me that your suggestion is wholly inconsistent with Howenstine's scheme. Howenstine says that the ends of his stiffening rods are bent into hooked form and are hooked upon the top edges of the sides *a*, said rods being made of such length as will permit them to embrace the sides and bottom of the receptacle A, bends being made at *c* to fit the corners of the box body and allow the stiffening rods to lie closely upon the outer surface of the same, said bends being made when the sides are erected in parallel planes to form a box (page 1, beginning with line 61). Also, the wholly independent stiffening rods on his lid are likewise shown as hooked over the front edge of the lid.

Your proposition, as I understand it, is to leave out Howenstine's hooks and make his stiffening rods of such a character as to enable their ends to be twisted together to close the box, provided they extended far enough out beyond the front of the lid and the top edge of the front to enable them to be so twisted.

Also, this would dispense with Howenstine's "turnbuckle latch hooks" and the cross-pins on his box ends.

Assuming, however, that the suggested alterations were made, then Howenstine's box would be converted from the knocked-down box which he intended to a one time box which he did not intend.

X Q. 305. Please refer to lines 8 to 19, page 1 of Howenstine, where it says that the "sides, bottom and top" are "held connected so that they may be erected in a rectangular form or be extended in one plane as a knocked down box." Is he here referring to the blank as it is first made

or to the blank which results from pulling out the staples as the patent describes?

A. He is certainly referring to the blank as it exists after the removal of the end walls. As I have heretofore stated, Howenstine does not say that, in the original [fol. 396] manufacture of the box, the lid is attached before the end walls are put in place and attached. From the order of his description it would seem to be the inevitable inference that in the first manufacture of the box the cover would not be applied until after the rest of the box had been completed.

X Q. 396. Now let us refer to the workholder patent in suit, No. 1,128,144. Mr. Browne, I would like to have you make a comparison between the defendant's machine and the prior art, especially Rosback No. 614,348, and to facilitate matters I have made a comparison and applied numbers to the causes. This comparison is as follows:

Defendant's chain feed box-blank machine has (1) two parallel stationary cleat guides in which the cleats slide endwise, and so has Rosback 614,348; defendant has (2) two endless chains or link belts arranged parallel with and between said stationary guides, and so has Rosback; defendant has (3) lugs or flights on said link belts to engage the rear ends of the cleats, and so has Rosback; defendant has (4) lugs or flights on said chains to engage the rear edge of the veneer, and so has Rosback; defendant has (5) stationary means for holding the veneer and cleats down on said guides and chains, and so has Rosback; defendant has (6) staplers disposed in a transverse row over the horizontal plane of travel of the veneer and cleats, and so has Rosback; defendant has (7) ratchet feed mechanisms for operating the feed belts in a step-by-step manner, and so has Rosback; defendant has (8) means for feeding binding wires under the staplers, to be stapled to the blanks, and so has Rosback; defendant has (9) means for feeding staple wire to the staplers to form the staples which are driven across the binding wires through the veneer and into the cleats, and so has Rosback; (10) in defendant's machine some lugs on the feed chains position the veneer on the cleats, and other lugs position the cleats relatively to the veneer, and this is true in Rosback; (11) defendant's stationary cleat guides and the traveling feed chains are laterally adjustable for

blanks of different widths, and so are Rosback's; defendant's machine (12) is operable with cleats of different lengths to produce blanks of different lengths, and so is Rosback; defendant's machine (13) relies on friction between the cleats and their stationary guides to hold the cleats at their rear ends against the lugs or flights (cleat pushers) on the chains, and so does Rosback; (14) were it not for this friction, the cleats might jump ahead out of position, and this is also true of Rosback; defendant has (15) stationary means to prevent dis- [fol. 397] placement of the veneer transversely of the feed chains and so has Rosback; defendant has (16) means for starting and stopping the feed chains, and so has Rosback; (17) defendant's box-blank making machine discharges the blank without releasing with it any portion of the work controlling means, and so does Rosback; (18) defendant has for each blank to be made by the blank machine as many cleat pushers as there are cleats to be pushed forward under the blank, and so does Rosback; (19) defendant's box-blank machine makes a blank which is not suitable for use alone as a box when it leaves the machine, and Rosback does the same; (20) defendant's feed chains have a plurality of sets of sheet and cleat pushers (each set complete for one blank) and Rosback's feed chains are also equipped with a plurality of sets of pushers; (21) defendant's cleat pushers co-operate with the sheet pushers to maintain the cleats and sheets in proper relation until the front staples are driven into the front ends of the cleats and so does Rosback; (22) in defendant's machine the cleats can be placed in the stationary cleat guides while the cleat pushers are stationary in resting position, and this is also true of Rosback; (23) in defendant's blank machine the cleat pusher on one chain is exactly opposite the cleat pusher on the other chain, transversely of the machine, so that the cleat at one side is positioned in exact alignment transversely with the cleat on the other side, and this is true of Rosback; (24) in defendant's machine one set of pusher lugs on the chains is coming into position to receive cleats and veneer while the set of pusher lugs ahead is feeding a blank under the stapler, and this is true of Rosback; (25) in defendant's machine the blank is not set up and preformed in its entirety before it is introduced into the machine, but, to the contrary, the cleats and veneer

are supplied piecemeal and separately to the machine, so that the blank is built and formed in the machine, and this is also true of Rosback; (26) in defendant's machine the two parallel feed chains or link belts are operated simultaneously to keep the pushers on one chain exactly opposite the pushers on the other chain, and this is true of Rosback; (27) in defendant's chain-feed box-blank machine the feed chains are at one side of the cleats and do not support the cleats, and this is true of Rosback (614,348); (28) in defendant's machine the blocks (as E and F in Craig patent 1,258,989) are on the chains and are not in the path of the cleats and some of these blocks have fingers which extend outward to engage the rear ends of the cleats and if these fingers were ommitted there would then be nothing [fol. 398] to push the cleats, but only sheet pushers, and this is all true of Rockback; (29) and in defendant's machine the sheets are spaced apart by the sheet pushers on the feed chains, so that the edges of the sheets cannot engage, while the wires are being stapled thereto, and this is true in Greenstreet machine patents Nos. 579,574 and 652,357, and in Lipps & Springer No. 801,998; (30) in Craig patent 1,258,989 the sheets are fed from a hopper by the sheet pushers on the feed chains, and this is true in Greenstreet 579,574; (31) in defendant's machine the veneer or sheet material is wired together with definite and predetermined spaces plainly showing just where the blank is to be folded, and this is true of Greenstreet 579,574 (see lines 97 to 100, pages 1 and 2, and lines 30 to 39, page 3), and this is true of both defendant and Greenstreet, regardless of whether tight boxes or open space crates are made; (32) in defendant's machine separate successive sections of the same blank are wired together in predetermined spaced relation to insure the proper folding of the blank into box form, and this is true in Greenstreet; (33) in defendant's machine the cleatless sections of each blank have the staples clinched on the under side of the blank, and this is also true of Greenstreet 579,574; (34) in defendant's machine, if the cleats are not inserted, the machine will go right on making cleatless blanks, as does Greenstreet and Lipps & Springer; (35) in defendant's machine the pushers on the feed chains are adjustable for different lengths of blank, and this is true of Jonas 538,021; (36) and there

are other similarities between defendant's machine and the prior art.

In the foregoing wherever I have referred to Rosback, I have meant the Rosback patent No. 614,348.

Will you state whether or not you agree with the statement which I have just made and if in any respect you do not agree, please indicate specifically, by reference to the numbered clauses in the foregoing statement?

Mr. Janney: Having given notice of an objection to be made to the foregoing question, defendant's counsel suggests that the witness withdraw during the recording of the objection.

(The witness withdraws and is absent throughout the stating of the objection.)

The first objection is that the question as a whole is seriously misleading in its implication that the Rosback machine deals with "cleats." For instance, in clause numbered (1) the expression occurs "the cleats side endwise," [fol. 399] referring to defendant's machine, and a like performance is attributed to the Rosback machine. The fact is that the Rosback blank machine does not deal with "cleats" at all. It deals only with strips of woods of indeterminate length, which are the mere raw material from which "cleats" are subsequently formed by severing operations at intermediate points and by trimming operations at the ends of the long wooden strips. There is no suggestion in any Rosback patent that "cleats," properly so called, can be dealt with upon a blank machine; and no Rosback machine has the capacity to deal with preformed cleats or with anything but the described long wooden strips of raw material.

A second objection is that the great majority of the clauses in the question are wholly irrelevant and immaterial; they relate to details of machine organization and operation which are utterly irrelevant to the inventive subject-matter of the machine patents in suit which has been appropriated in defendant's machine.

For instance, the essence of one inventive feature of the machine patents in suit is the relative location of individual cleats, preparatory to wiring them together, so that they shall fold, when wired, into predetermined rela-

tionship, whether the particular predetermined relationship is that involved in adjacent sides of the box or oppositely disposed sides. This subject-matter in particular has been bodily incorporated in defendant's machine, but that same subject-matter is wholly lacking from the Rosback machine. Hence, every reference in the question to the Rosback patent involving the implied dealing with separate pre-formed cleats is not only inaccurate and misleading, but is irrelevant

For another example, the lateral adjustability of stationary cleat guides is irrelevant (Clause 11 of the question).

In Clause 19 it is asserted (erroneously) that defendant's machine "makes a blank which is not suitable for use alone as a box when it leaves the machine, and Rosback does the same." This is obviously inaccurate and misleading; the product of the Rosback machine is not a box-blank at all, but is merely a rigid structure requiring to have its side sheets scored and its long strips of wood severed and trimmed at the ends in order to provide—then for the first time—any cleats at all.

[fol. 400] Frequent references are made in the question to use of "cleat pushers" in the Rosback machine. Because Rosback does not deal with cleats, but only with indeterminately long strips of wood, he employs no "cleat pushers" which perform the dual function of propelling and relatively locating the aligned cleats, which dual function importantly characterizes Inwood & Lavenberg's machine and defendant's machine.

The foregoing simply exemplify various inaccurate, misleading and irrelevant statements in the question, and it is needless to incumber the record by multiplying citation of instances.

Mr. Cox: Defendant's counsel does not consider the objection requires special reply other than to say that it does not seem to be well founded. For example, it is pointed out that the objection states that "Rosback does not deal with cleats at all," whereas, as a matter of fact, this exact term is contained no less than four times in the very first column of the first page of the Rosback patent.

Mr. Janney: Reference to the Rosback patent will show unmistakably that his use of the word "cleats" refers inaccurately to the long strips of wood, which are not cleats

in any proper sense and do not become cleats until after they have departed from the Rosback blank machine and have been severed and trimmed by an entirely distinct wood-working operation. The word "cleats," as used in the question and referring to defendant's machine, has an entirely different significance from the word as used in the Rosback patent. The word "cleats" has a fixed meaning with reference to plaintiffs' and defendant's machines; and an importantly different meaning as used, incorrectly, in connection with the Rosback machine.

Mr. Cox: If there is any error in the use of the term "cleats," it would seem to be in the patents in suit and not in Rosback as Rosback used it first.

A. I will answer the question generally in the affirmative, except in the particulars which I will point out.

At the outset I wish to make one general observation in so far as concerns the comparison between the defendant's machine and the machine of the Rosback patent 614,348, so as to avoid repetition in connection with each of the numbered clauses in your question.

While the Rosback chains carry two sets of pushers, [fol. 401] nevertheless, only one set of pushers can be in action at any one time. The two sets of pushers of Rosback co-operate with the long cleats and sheets which go to make up two boxes, so that there is no functional relation between the two sets of pushers. Their distance apart has no relation whatever to the characteristics of the box-blanks which are formed.

On the contrary, in the defendant's machine, there is a group of pushers on the chains for each box-blank. That is to say, there are on each chain for each blank four pushers for the four sheets and two pushers for the two cleats which enter into the fomation of a single box blank. These cleat pushers and sheet pushers have a definite relation to each other, depending upon the size and proportions of the box which is ultimately to be made. That is to say, the four sheet pushers must be so located that when the blank is completed they will fold to constitute the front, back, bottom and lid of the box. Also, the cleat pushers must be located with particular reference to each other and with reference to the sheet pushers so that the cleats will be

properly positioned in the blank, not only with respect to each other, but with respect to the four-side sheets.

There is nothing of this sort in Rosback wherein there are two long cleats for all four sides of the box and which need not be of any prescribed length since their ultimate length is determined by the transverse sawing machine. Likewise, the sheet material employed, so long as it is long enough to provide material for the four sides of the box, need not be of any definite length because its ultimate length dimension will be determined by the sawing machine.

Accordingly, in each of the numbered clauses of your question, when you say "so has Rosback," I wish, when answering in the affirmative, that it be understood that all these differences between Rosback and defendant's machine are to be considered incorporated. Otherwise, I shall have to answer every clause containing the words "so has Rosback" in the negative.

I will first enumerate the numbered clauses with which I disagree without qualification.

(7) The Rosback patent under consideration does not have a ratchet feed for the feed belts. It has a continuous feed. See page 1, line 35.

(11) I have not noticed any statement in the Rosback patent No. 614,348 that the cleat guides and traveling feed chains are laterally adjustable. However, I do not consider this an important distinction, because I see no [fol. 402] reason why the lateral adjustment might not be incorporated in the Rosback machine without difficulty.

(14) I do not know whether the cleats might jump ahead either in the defendant's machine or in the Rosback machine, under the conditions here mentioned.

(16) Rosback has automatic means for stopping his machine, first, after the completion of the preliminary feed, and, second, after a blank has been completed and the wires have been cut. The Rosback machine must stop twice for the making of each blank. I do not remember any such thing in the defendant's machine. My recollection is that it will run continuously unless the attendant manipulates some hand-controlled stop mechanism.

(18) It seems to me that this clause is particularly misleading unless the preliminary considerations which I have pointed out are borne in mind. Categorically, the statement is true, but the differences are more notable than the resemblances.

(19) Defendant's box-blank machine does make a blank which can be used alone to enclose a single can. This is not true of Rosback.

(20) This statement is literally true, but my preliminary observations are especially important in connection with it.

(28) I am not sure that I quite understand this clause. It is, however, true of defendant's machine that if the pushers D were removed, there would be nothing to push the cleats through the machine; and it is likewise true in the Rosback patent that if there were no pushers behind the cleats, Rosback's long cleat lengths would not be pushed through the machine.

(31) I think the description in the Greenstreet patent No. 579,574 to which you refer, on page 3, is the expression of a hope rather than a description of an accomplished result. Assuming, however, that Greenstreet can make a box with each side of one piece material, I would answer this clause in the affirmative.

(35) It seems to me that there is such a vital difference between the adjustment in the defendant's machine and that in the Jonas patent No. 538,021 as to render them incomparable.

In the defendant's machine the pushers on the feed chains have to be adjusted with particular reference to the length of the blank and the proportions which the sides bear to each other. This is not true of Jonas. Jonas has a separate pusher for each of his pamphlets. If the Jonas [fol. 403] pushers were initially placed in position on the feed chain so as to accommodate the largest pamphlet to be handled, no adjustment of the pushers would be required for smaller pamphlets. The only purpose, therefore, of the adjustment in Jonas is to enable more small pamphlets to be fed through the machine in a given time than when larger pamphlets are employed.

It is true that in the patents in suit a large number of S-cleated blanks can be formed up and then brought to the stapling machine in their preformed condition and introduced as preformed units for the first time into the feed mechanism of the machine. This preforming of each S-cleated blank may be done while the forming and positioning means are stationary and while other preformed blanks are being sent through the stapling machine. In defendant's system the stapling machine does the initial forming of the blank, so that the machine is a combined forming and stapling machine as is true of Rosback. It is also true that in defendant's machine, as in Rosback, the blank forming and feeding means are an integral part of the machine. In Rosback 614,348, if the pushers F' are not opposite on the two feed plates so that the pusher at one side is some distance ahead of the pusher at the other side, the cleats will be displaced relatively to each other and to the sheets.

X Q. 312. This Rosback patent says that the feed chains are provided with "similarly located projecting blank engaging feed lugs F'," and will you say what you understand the word "similarly" means? You can see lines 106, 107 and 108 of page 2.

A. I understand the word "similarly" to have its ordinary significance of meaning in like manner. It means "in like manner."

X Q. 313. Well, suppose in this Rosback patent that the operator does not put the two cleats in there with their rear ends in alignment transversely. What happens when one pusher bumps the rear end of one cleat?

A. Pushes it ahead.

X Q. 314. Why does Rosback specify cleat and sheet pushers on both feed chains instead of on just one feed chain?

A. I don't know. He might get along with a single feed chain, as far as a possibility.

X Q. 315. But that would imply a reorganization, wouldn't it?

A. Yes.

X Q. 316. But taking the machine just as it is shown in the patent.

[fol. 404] A. If that were so, he would only have means for feeding the one cleat length alone. The opposite cleat length would stand still and he would get a blank with only one long cleat on it.

X Q. 317. What I am trying to bring out is that the pushers on the two chains in Rosback do have a relative positioning effect with respect to the blank, and if one of the pushers is out of its proper relative position on its chain the blank would be improperly formed?

A. Yes, that is correct.

X Q. 318. In this Rosback patent 614,348 the "feed lugs" F' are shown as having upstanding pushers to engage the rear edges of the veneer and laterally projecting pushers to engage the rear ends of the cleats formed there? (See Figure 11).

A. Yes.

X Q. 319. So that in this patent the relative positions of the cleats and sheets is predetermined by the cleat and sheet pushers?

A. Yes.

X Q. 320. What other relation, contrary to that indicated by the pushers, could the Rosback cleats and sheets assume or have after they are bumped forward by the pushers?

Mr. Janney: It should be noted, in order to avoid misunderstanding, that the alleged "cleats and sheets" dealt with in the Rosback machine are not cleats and sheets in the sense in which these expressions are used in the patents in suit, nor in the sense in which those expressions apply to the operation of defendant's machine. Rosback's so-called "cleats and sheets" are simply the raw materials of indeterminate length, from which the rigid and unfoldable product of the blank machine is made.

There is no warrant for the expression "bumped forward" employed in the question.

A. None.

In Jonas, 538,021, the pushers on the feed chain are adjustable "in accordance with the size of the blanks," but when the length of blank is changed, it is not necessary to adjust the pushers in this Jonas patent in order to maintain the necessary relation between the pamphlets or "other blanks." For example, assume that the Jonas machine

was being used to fasten the sheets of the Saturday Evening Post, then the flights F would have to be adjusted far enough apart to let the Saturday Evening Post be placed between them. If the machine were then to be used to [fol. 405] fasten together the sheets of the Outlook, there need be no change in the flights. This, however, would be uneconomical because the machine could only then fasten as many Outlooks together in the same time that it had fastened the Saturday Evening Posts together. By adjusting the flights closer together to correspond with the size of the Outlook, more Outlooks could be fastened together in a given length of time than would otherwise be the case. Conversely, if the Jonas machine were adjusted for the Saturday Evening Post and it were decided to staple the Ladies' Home Journal, assuming that the Ladies' Home Journal is bigger in page heights, then the flights would have to be adjusted farther apart.

X Q. 324. Well, then, it is necessary to maintain a working relation between the blanks in order to avoid driving staples between the blanks when the length is changed and to insure the insertion of the desired number of staples in each blank when the feed stroke is changed?

A. Yes.

X Q. 325. So you cannot just shorten the blank and leave the pushers where they are in this Jonas patent, but must change the feed stroke and adjust the pushers to insure co-operation between the staples and the chain feed apparatus, to prevent the successive blanks from getting out of step with the staplers?

A. Yes.

X Q. 326. In Fuller 694,467 the arrangement of cleat and strip positioning lugs on the feed chain must be such that the predetermined relation between the basket covers will prevent the driving of nails or staples between the blanks and will insure keeping the blanks in step with the action of the nails or staples; is not that right?

A. I suppose your question is not to be understood as referring to the "segments" K of this patent, when you speak of cleats.

This Fuller patent does not describe his "nailing head," but I presume he intends to use a nailing head like that shown in his earlier patent No. 690,416, January 7, 1902.

That nailing head is one which is adapted to feed nails. I do not see anything about staples in either patent. Still I make no point of this because the machine, doubtless, could be reorganized so as to handle staples.

I do not note anything in this patent regarding any timing or spacing of the several material holders with respect to the nail driving. If there is anything in this patent to [fol. 406] this effect, I would be glad if you would call it to my attention. I do not notice such a description.

X Q. 327. It would have required only the most obvious mechanical skill to substitute binding wire staplers for the ordinary staplers or nailers that were desired to make the wired product of the Fuller machine, wouldn't it?

A. I do not know. It will be noted from pages 3 and 5 of the Fuller patent, No. 694,467, that the nails driven into the outer strips J are not in line with those that are driven in the middle strip J by reason of the curvature of the segments K. I understand that the driving is simultaneously done and by the same driving stroke for the nails at the end of all three strips J. The character of nail feed shown in the earlier Fuller patent is adapted for thus presenting the differently located nails at the same time. I presume that the stapling mechanism could be organized so as to act in the same way and so as to drive all of the staples at the same time into the ends of the three strips. I don't know whether this could be done or not, but I should think it might be.

X Q. 328. The elements T of Fuller 690,416 or the similar elements K of Fuller 694,467 don't lose any of their characteristics as cleats simply because they are slightly bowed, do they?

A. Perhaps not, but it does involve quite a different action as compared with when straight cleats are employed.

X Q. 329. In Greenstreet 547,486 the corner strips A' are spaced apart a greater distance in the blank than are the intermediate strips A, are they not?

A. Yes, I think that is the intention of the drawing.

X Q. 330. Then the blank is made with a predetermined relation between the four flexibly connected sections in the ultimate box?

A. Yes.

X Q. 331. And this predetermined relation is intended very plainly to be insured by the machine of Greenstreet 579,574—you see the relation between these two patents, do you not?

A. The Greenstreet patent No. 579,574 refers to the other Greenstreet No. 547,486. I do not, however, recall seeing anything in this patent No. 579,574 which makes any provision for any difference in the spacing of the two sorts of slats shown in patent No. 547,486. If there is anything of that sort, I would be glad to have it called to my attention.

X Q. 332. Well, this Greenstreet patent has pusher lugs for spacing apart the different sections of the same blank [fol. 407] and the different sections are of different widths, and it is a necessary conclusion, isn't it, that the machine, to be operative at all, would space the different pusher lugs properly to turn out the product?

A. As far as my eye can judge, Greenstreet shows his feed chain links all the same length, which would be a necessity so as to match with the driving teeth on his sprocket chains. He also, apparently, shows his lugs on his links spaced the same way and the same distance apart on the several links. In order to provide for the different spacing shown in the box patent, it would apparently require either that there should be a variation in the feed strokes or else a variation in the lug positions on the chain links. I do not note any suggestion of either arrangement in the patent. If there is anything said on the subject, I would be glad to have my attention called to it.

X Q. 333. In the patents in suit the so-called "spacer blocks" perform no function as pushers for the cleats until after the first staple is driven in the front end of each cleat so that the binding wires exert a back pull; is not that so?

A. Yes, except in so far as the inertia of the cleats may suffice to keep them against the rear faces of the pushers as the carriage is fed to the stapling mechanism.

X Q. 334. In defendant's machine the cleat pushers perform this propelling function on the cleats to overcome friction and inertia of the cleats immediately upon engaging the cleats in the stationary guide?

A. Yes.

X Q. 335. And some time before the back pull of the binding wires is exerted on the cleats?

A. Yes.

It is true of the machine of the Rosback patent, 614,348, that the cleat pushers perform a propelling function to make the cleats move against friction and inertia in their stationary guides for some distance before the back pull of the binding wires is communicated to their pushers. It is true of the defendant's machine as I saw it in operation, that the sheets and cleats are introduced into the machine while the cleat and sheet pushers are moving intermittently forward. In other words, the defendant does not stop the forward feeding motion of the pushers long enough to assemble a complete blank. It is true that in defendant's machine one of the attendants stands where he can quickly place the cleats in front of the forward moving pushers, either while they are momentarily stationary or while they [fol. 408] are driven a step forward; and the feed chain and the blank being stapled, and the unstapled material behind moves a step forward after each down stroke of the staplers. In defendant's machine the cleats and sheets are placed by the workmen in position to be moved forward by the same identical feed chains that are at the same time propelling the blank ahead under the staplers.

X Q. 342. In Craig patent 864,955, as in the Inwood & Lavenberg patents in suit, the "spacer blocks" do not have any propelling function until something is encountered like the back pull of the binding wires which tends to hold the cleats against forward motion and which must be overcome by the forward pressure of the spacer blocks?

A. That is true except in so far as the inertia of the cleats may involve an earlier pushing office on the part of the pushers.

I think that in Craig patent 864,955 the cleats move without friction on the link belts, and that there are eight cleats for each blank and spacer blocks are provided between the ends of the cleats at adjacent sections of the blank. In defendant's machine the cleats are not supported by feed chains, but are supported by and slide in stationary guides.

X Q. 345. You know, don't you, that plaintiffs own this Craig patent 864,955 and are using this type of machine in-

stead of the portable formers of the Inwood & Lavenberg patent in suit?

A. I have no knowledge of the ownership of this Craig patent, though I have been informed, if my memory serves me rightly, that the plaintiff does own it or control it, or is licensed under it. I do not know how it is. I do not recall which. Plaintiff does make machines which, in principle of operation, are like this Craig patent.

In defendant's machine the pushers have a propelling function just the instant they hit the rear ends of the cleats.

X Q. 347. In Rosback 608,796, the machine can be of any desired length and there is no limit to the number of pushers H⁶, isn't that true?

A. Yes, except I suppose practical reasons such as floor space and weight would impose a limit on the length of the feed chains and hence the number of pushers that were employed.

X Q. 348. And in this patent the workman can easily assemble another blank while the one ahead is moving intermittently under the staplers?

A. Yes, if the chains were long enough.

[fol. 409] X Q. 349. And in the Rosback patent 608,796 it says:

"Extending over each sprocket wheel H⁴ and its companion sprocket wheel H⁵ is a flexible feed belt, preferably in the form of a chain H⁶, which on the upper side rests and slides upon the guide strip $s^2$. Each feed chain is provided at stated intervals (in the present machine nine feet apart) with stops or cleat and sheet engaging projections H⁸, they being on the outer side of the chain to project upward as the chains pass from the sprocket wheel H⁴ to the sprocket wheel H⁵ over the guide strips $s^2$."

Is that correct?

A. Yes.

It is correct to say that the function of the Fuller workholder is distinctly and essentially that of positioning. His workholders could be used stationary with movable means to insert the staples or nails. This is also true of Malthy's portable workholder patent 666,872, and it is also true of Fuller's portable workholders, with wheels, his so-called carriages.

X Q. 354. And the Fuller patent 690,414 says:

"My invention relates to improvements in means for conveying and holding materials to be operated upon by means of various machines, and more particularly the nailing machines, stapling machines and machines of like nature which are adapted to the manufacture of baskets, boxes, and like structures.

"The object of my invention is to provide greater facilities for handling, assembling and holding the material to be operated upon, whereby a number of operators may work in conjunction with a single machine, thereby greatly increasing the capacity of the same.

"In operating such machines in the usual way by single operators, considerable time intervenes between the strokes of the machine, during which time the operator is assembling and disposing of the work.

"My invention consists essentially in providing improved means for moving and holding cars having holding means in which to assemble and nail the materials consisting of tracks or ways for the cars, together with automatically operated pawls, stops, switches and other devices whereby the cars are moved or held, so that a number of operators may work in conjunction with a single machine and thus greatly increase the output from the same."

[fol. 410] The Fuller patent says that, does it not?

A. Yes.

X Q. 355. And it is also true of Fuller and Greenstreet workholders that they do "invariably and incessantly" perform the positioning function whether or not they are called upon to perform additional incidental functions?

A. Yes.

X Q. 356. Well, suppose in the machine of the Rosback patent 614,348 we insert some preformed cleats in guide, say four cleats in each guide, with little blocks of wood between the ends of the cleats, and then place the sheets thereon, the result would be a flexible blank, wouldn't it?

A. I would have to see the suggested machine operated before I could express an opinion.

X Q. 357. Well, in any event, it would not take any reorganization of the Rosback machine to increase the number of pusher lugs, would it?

A. Yes.

X Q. 358. It shows two pairs, doesn't it, in the patent?

A. Yes.

X Q. 359. Greenstreet shows probably twelve or fifteen pairs, doesn't it?

A. Yes.

X Q. 360. Then you still think it would require a reorganization of the Rosback machine to increase the number of pusher lugs?

A. Yes. His existing two pair of pusher lugs have no relation whatever to each other. What you are proposing to do is to change over the Rosback machine so that you give it an entirely different mode of operation and to make it produce an entirely different result. I should call that a substantial reorganization.

X Q. 361. Even though it simply involved adding a few pusher lugs and in spite of the fact that Greenstreet has three or four times as many as the defendant's machine?

A. Yes, because the pusher lugs would have to be put upon the machine in a particular way to produce a result which neither Greenstreet or Rosback produce or contemplate. Considering, also, the widely different character of the products of Greenstreet and Rosback, I do not see any logical connection between the two machines.

X Q. 362. It is impossible, is it not, to use the Rosback machine with thin strips of wood having spacer blocks thereon with each strip placed in one of the cleat guides and then to place the preformed cleats between these spacer blocks with preformed sheets on the cleats and then to drive [fol. 411] the cleats and sheets thus assembled under the staplers to wire the sheets and cleats together?

A. I do not know. I would have to see it tried.

X Q. 363. You know, do you not, that the users of Rosback machinery sometimes did this to use up scrap material which had accumulated?

A. No.

X Q. 364. Don't you think such would be an obvious expedient?

A. No.

X Q. 365. Well, would such use of the Rosback machine employ the invention or alleged novelty of the Inwood & Lavenberg patents in suit?

A. I do not know. I would have to see it tried.

X Q. 366. Figure 20 of the Craig machine patent 1,258,989 shows defendant's blank (except for the rabbeted cleat ends instead of tongue and grove) as it would appear folded?

A. Yes, substantially so.

X Q. 367. And Figure 19 of this Craig patent shows how the blank was made on the chain feed blank machine used by defendant, doesn't it?

A. Yes, substantially so.

In plaintiffs' machine the obtaining of the lap corner for the ultimate box depends upon the width of the sheets. In Fig. 19 of this Craig patent the sheet pushers *f* engage only the rear edges of the sheets, and the materials are traveling toward the right. The front edges of the sheet are shown a distance from the sheet pushers. By thus changing the width of the sheets, either an open corner or a tight corner can be made from the semi-cleatless blank made on defendant's machine. It appears that in this Craig patent, as in defendant's machine, the cleat pushers *e* are farther apart in each stationary guide E than the combined length of two cleats.

X Q. 373. *Can you describe the method which the Chicago* Mill & Lumber Company had been using in the making of their box before the loose spacer block method—loose blocks between the ends of the cleats sliding in guides?

A. I do not know. If I said anything about it in my testimony in the suit against that company, I do not now remember what I said.

X Q. 374. In defendant's machine the piece-meal assembly of the blank takes place while the blank is moving along, doesn't it?

A. Yes.

[fol. 412] X Q. 375. It is like tossing boards into a river, isn't it, they immediately float down stream?

A. I do not see the analogy. A board might encounter a back eddy.

In defendant's machine the workman must work fast and keep up with the machine or the blank is liable to move along and go under the staplers only partly prepared. In the Inwood & Lavenberg patents in suit a lazy workman can place the portable "former" on a bench and then take

all the time he wants to form the blank in the stationary former, if his boss will stand for it. From reading the method patent in suit and the original application thereof, I do not know what was left out of sheet 2 of the drawings.

X Q. 379. There was nothing in the original application of patent 1,128,144 shown or said about the method of converting the blank into a box or the method of using the box, or its behavior in use, was there?

A. I never read it.

X Q. 380. The blank shown in the method patent in suit and shown in the workholder patent in suit might employ end walls an inch thick or even thicker lumber which would not break and from which the cleats would not tear loose; isn't that true?

A. Yes, but that would seem to be a foolish procedure and a waste of good material.

X Q. 381. And in such a construction the sheets would tear loose under certain strains from the staples?

A. I do not know. I should have to try it.

X Q. 382. The thickness of the end walls and the method of securing the end walls in place is not shown or described in any of the patents in suit, is it?

A. *I believe not.*

X Q. 383. As far as you know, the only application filed by Inwood and Lavenberg prior to the method patent in suit which showed any method of converting the blank into a box was the application for the expired reissue patent in suit; isn't that true?

A. I do not know. I have not read the several Inwood and Lavenberg applications.

It is my recollection that the materials used by defendant comprise wood veneer for the sheets, with the grain of the wood extending transversely of the binding wires.

X Q. 385. And such material will dry and shrink and separate the edges of the sheets after the blank is made or it can be caused to expand by moisture of water until the originally separated edges are tight together; isn't that true?

[fol. 413] A. Very likely.

X Q. 386. So the lapped corner is an elusive and uncertain quantity and a thing which is liable to appear or

disappear after the blank is made when wood veneer is used?

A. It is a possibility.

There have been various kinds of heads or end walls and various ways of fastening them in place prior to the patent in suit, as shown by the prior art. It is reasonable to assume that the grain of the wood in the front wall and end walls and back wall and bottom of the box of the Howenstine patent, runs lengthwise of the box.

X Q. 389. In your answer to X Q. 294 you expressed the supposition that the downwardly projecting parts as shown at the ends of the bottom of Fig. 2 of the Howenstine patent which represent staples, should have been marked $i'$ to correspond with the staples similarly marked at the front and back walls of the box. Howenstein explains that when he wanted to knock down the box he withdrew the staples $i'$ and this of course would leave the cleats $i$ at the front and rear vertical edges of the box still attached to the end walls by the staples $i_2$. You will note that the bottom cleats have no staples securing them to the end walls and that the draftsman has not applied the reference characters $i'$ to these staples at the bottom of the box. It is a necessary conclusion, therefore, isn't it, that when Howenstine knocks down the box by withdrawing the staples which he has marked $i'$, that he leaves in the staples at the bottom of the box in which case the cleats at the bottom of the box would remain on the bottom sheet, these bottom cleats not being fastened to the end walls?

A. I should not say it was a necessary conclusion. There seems to be a good deal of conjecture in your question.

Please note that I did not say in answer to X Q. 294 that the draftsman "should have" marked the bottom staples with the reference characters $i'$. It was not necessary for him to do so. What I did say is had he indicated these bottom staples by reference characters, he would have marked them $i'$.

Now, if there is any uncertainty in the Howenstine disclosure, it cannot be made to fit any subsequent theory. The specification draws no distinction between the way the three cleats $i$ are secured to the sides of the box nor does it describe any difference in their treatment when knocking down the box.

And had Howenstine any such idea as set forth in your [fol. 414] question, he should have described it and not left it to future conjecture.

X Q. 390. But he did not leave it to conjecture, for it is plainly shown in the drawings. Howenstine neither shows or describes the bottom cleats as fastened to the end walls, does he; if so, please point out where?

A. I said nothing in my preceding answer about Howenstine attaching his bottom cleat *i* to the end wall. Nevertheless, in the only sentence in which there is any description of the attachment of his cleats or battens *i* there is no distinction drawn between the attachment of the several cleats except in so far as may be inferred from the circumstance that the drawing does not show staples *i*² on the bottom cleat.

X Q. 391. There is no use beating around the bush on this. The plain fact of the matter is, isn't it, that in Howenstine's drawings he shows staples fastening the bottom cleats to the bottom of the box and no attachment at all to the end walls?

A. Yes.

X Q. 392. Then if he knocks down the box and takes out all the staples which he has marked in the drawings *i*² it would leave the bottom cleats attached to the bottom of the box?

A. Certainly.

X Q. 393. When Howenstine bends those heavy wires or rods of his in folding the blank, it would necessarily tension them at the corner, wouldn't it?

A. Yes, to the extent that I have already pointed out that when a rod or wire is bent its outer face has to follow a longer path than its inner face. This has to be compensated for in some way, either by the accommodation of the metallic particles with respect to each other or by a slight compression on the wood or both. Probably the wood would yield so that no appreciable tension would result.

X Q. 394. Please refer to the machine of the Rosback patent 614,348. Please assume that preformed cleats as in the expired patent in suit are laid in the guides and preformed sheets as shown in the expired patent in suit are laid upon them, and that pieces of wood or any other ob-

ject that would hold the cleats spaced apart were interposed between the ends of the cleats and the wires and staplers were in the machine and the machine started, this would produce the same blank as shown in the expired patent in suit, wouldn't it?

A. I do not know. I would have to see it tried.

X Q. 395. Well, at least it would not require any reorgani- [fol. 415] zation of the Rosback machine in any way to put these elements into it in the way I have described?

A. That would depend upon what happened. If your suggested mode of procedure worked all right, then no alteration would be necessary. If it failed to work, then doubtless some reorganization would be required to make it work. Evidently, Rosback had no such idea because he says nothing about it.

X Q. 396. In view of the fact that Rosback shows very effective guides for his cleats and sheets, these guides confining them at the top, bottom and sides, you cannot think of any particular reason why it wouldn't work, can you?

A. Your question makes a statement of fact. Personally I have no knowledge of the facts regarding the efficacy of the machinery of the Rosback patent. My information is to the effect that it was a total failure of the purpose for which it was designed.

Possibly if the machine was used for some other purpose than for that designed, it might work. I have no knowledge on the subject, and cannot say.

X Q. 397. The Rosback machine may not have been commercially profitable, but you know as a matter of fact, don't you, that it was a mechanical success in the sense of being perfectly operative for the purpose and in the manner intended?

A. I have no knowledge of the facts. My information is that the machine was a total failure for all purposes.

X Q. 398. Well, it is true, is it not, that in Fig. 11, for example, of this Rosback patent, there are shown top guides $s$, $s^1$, side guides $b$ and bottom guides or supports $b^1$, the side guides, of course, co-operating to prevent the sidewise shifting of the box material?

A. Your statement of the structure is correct. I see nothing to prevent the cleats being displaced endwardly toward each other in Fig. 11.

X Q. 399. And if instead of the long single cleats of Rosback the cleats had been made up of short pieces as in the expired patent in suit and the machine had been started, the short pieces would have been pushed forward, wouldn't they; there is no other conclusion possible?

A. I do not know what would happen without trying it. I see nothing in the machine to prevent the suggested separated individual cleats from buckling endwardly and getting out of line with each other. Certainly there is no description in the patent of how to handle individual cleats.

X Q. 400. Please refer to Fig. 3 of Rosback 614,348. Would you not say that the bottom supports of the guides [fol. 416] have flanges at the inner edge which would prevent the cleats from getting out of alinement in case the cleats were preformed in short pieces instead of one long piece?

A. There seems to be an inconsistency in the Rosback patent between the showing of Figs. 3 and 4 on one hand and Fig. 11 on the other. Since, however, Fig. 11 is a special view on a large scale for the particular purpose of illustrating the devices for handling the long cleats and the sheets, I should assume in case of discrepancy that the correct showing was in Fig. 11. What might be assumed to be a flange on Figs. 3 and 4, might be merely a projection of no substantial length. There is no description in the specification of any flange or any utility therefor.

X Q. 401. Well, it wouldn't have required any invention at all to have put an inner flange at that point if it had been wanted, and if as a matter of fact it was not present, would it? Guides for all kinds of materials had been known for many years prior to the patents in suit, hadn't they?

A. I do not see that a guide at this point is of any use in the Rosback machine. Rosback puts his long cleats in place and then by means of his preliminary feed locates his blank parts in position for the stapling to begin and then the machine automatically stops. If there has been any disturbance of the long cleats the attendant can correct it.

I do not see that the antiquity of guides by themselves has any bearing upon the proposition as to whether or not it may be invention to use guides in any particular new relation to get a new result. Guides like other known mechanical elements have in the past constituted parts of patent-

able combinations and I have no doubt will continue to do so for many years to come.

X Q. 402. You are not overlooking the fact, are you, that the bottom guides $d'$ of Rosback are held up by springs and hence would exert a pressure upon the sheets which would tend to prevent them from bucking endward as you suggest?

A. On the contrary, it is the very presence of these springs that led to my conclusion. Individual cleats can not be relied upon to be of uniform height. If one cleat was a trifle higher than those before and behind, the lower cleats would not have any restraint by the spring and hence might get out of proper alinement.

X Q. 403. But guides for the inner sides of the cleats are shown in Rosback patent No. 608,796, aren't they, see for example, Fig. 29?

A. The parts $s^4$ shown in Fig. 29 of the Rosback patent [fol. 417] No. 608,796, are described in the specification at page 4, line 19, as "spring fingers." I do not understand that these spring fingers constitute inner guides extending throughout the travel of the cleat lengths.

X Q. Nevertheless these so-called spring fingers keep the cleat elements $s^1$ in contact with the outer wall of the guide, don't they?

A. So far as I understand this patent, these spring guides are located simply at the point where the cleat lengths are entered into the machine.

X Q. 405. But if you will refer to Fig. 28 you will find that there are other similar elements which co-operate to hold the cleats in proper position in the guides?

A. I don't think so. The devices shown in Fig. 28 are simply yielding supports for the top strip $s^3$ which overlies the sheet material, as described in the specification at page 4, line 30. They have nothing to do with the spring fingers $s^4$ shown in Fig. 29.

X Q. 406. At least this Rosback patent teaches that an element of this kind can be employed for holding the cleats in contact with the outer wall of the guide, doesn't it?

A. Yes, at the entrance end.

* * * * * * *

Recross-examination.

By Mr. Cox:

R X Q. 1. All that tensioning of the wires that you talked about in the redirect is shown in the expired patent and is a part of the patent in suit, is it not?

A. Yes.

Deposition closed.

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In accordance with the stipulation of May 19, 1925, defendant's counsel offers in evidence the following:

Extract from direct examination of ARTHUR S. BROWNE in rebuttal, found on page 238 of Plaintiffs' Record of Wirebounds et al. v. Chicago Mill & Lumber Company, in the District Court of the United States, Northern District of Illinois, in equity No. 174

The only box blank which the Howenstine specification thus describes is the blank comprising the four side sections with their stiffening rods and the two cleats which are secured to the lid. This blank is used with the two ends, each of the ends comprising the two spaced walls *h*, the [fol. 418] three spacing strips *h'* and the three end cleats *i*. The box blank thus disclosed by Howenstine has no resemblance to that of the Inwood & Lavenberg patent in the respects which I pointed out in the beginning of this discussion of the Howenstine patent.

OFFER IN EVIDENCE

In accordance with the stipulation of May 19, 1925, defendant's counsel offers in evidence the following:

Portions of the record in the suit of National Wire Bound Box Co. et al. v. William P. Healy, in the United States Circuit Court of Appeals for the Seventh Circuit, October term, 1909, No. 1717 to be referred to by defendant at the hearing, being portions of Defendant's Exhibit G in the Gibbons suit forming part of the record in this suit.

Certain parts of the bill of complaint filed by William P. Healy, on December 14, 1904, against National Wire Bound

Box Company, Samuel M. Robinson, Richard G. Inwood and Perry C. Lavenberg, from United States Circuit Court of Appeals (Seventh Circuit) record of said suit No. 1717, as follows:

By Mr. Janney (of counsel for plaintiffs):

All excerpts from the bill of complaint aforesaid are objected to as immaterial, irrelevant and incompetent.

The present status of those excerpts is simply that of self-serving statements made by one not a party to this suit and not even made under oath so far as this record shows (see Bill of Complaint, Healy Suit Transcript of Record, part of Defendant's Exhibit No. 17, pp. 2 to 30, inclusive); and even those statements are shown to have been erroneous by the decision of the Circuit Court of Appeals for the Seventh Circuit in the said suit of National Wire Bound Box Company et al. v. William P. Healy, 189 Fed. Rep. 49.

Page 7, it is charged that:

Richard G. Inwood and Perry C. Lavenberg have wrongfully and fraudulently betrayed the trust reposed in them as officers and directors of said South Bend Healy Box Company by your orator when he placed his machines in their possession, care and custody as aforesaid, as is hereinafter shown.

[fol. 419] Page 10:

Your orator shows that said Richard G. Inwood being then and there a member of the board of directors of said South Bend Healy Box Company, being also treasurer, manager and one of the principal stockholders of said company, wrongfully and fraudulently placed the legal title of said wirebound box-blank machine in the name of said South Bend Healy Box Company instead of in the name of your orator; that afterwards, to-wit: on September 17, 1904, your orator discovered the said fraud of said Richard G. Inwood and your orator demanded of said South Bend Healy Box Company the transfer of the legal title to said wirebound box-blank machine to your orator, that said South Bend Healy Box Company disavowed the said fraud of said Richard G. Inwood, and transferred the legal title to said machine to your orator.

Page 17, in the said bill of complaint, it is stated:

that said Richard G. Inwood then and there wrongfully and fraudulently refused to assign his interest in such inventions, or either of them, to your orator.

Pages 18 and 19 it is stated and charged:

that said Samuel M. Robinson took said pretended assignments and conveyed his said pretended interest in said patent 518,038 to said National Wire Bound Box Company with the fraudulent intent of placing a cloud on your orator's title as exclusive licensee under said patent 518,038, and thus prevent, hinder and delay your orator from introducing his machines into public use.

Page 20 it is stated and charged as follows:

Your orator charges on information and belief that said Richard G. Inwood and Perry C. Lavenberg have made other applications to said Commissioner of Patents to obtain letters patent on other inventions relating to machines for manufacturing wirebound boxes or wirebound box blanks, barrels and crates, that they agreed to sign any papers necessary to enable your orator to obtain patents on such inventions and that they have wrongfully and fraudulently assigned such inventions to said National Wire Bound Box Company.

[fol. 420] **Portions of the findings of the Master in the suit of National Wire Bound Box Co. et al. v. William P. Healy, in the United States Circuit Court of Appeals for the Seventh Circuit, October term, 1909, No. 1717:**

**Volume 1, page 138, as follows:**

This Howenstine patent is a pioneer patent on the wirebound box. A copy of the letters patent will be found on page 85 of the testimony and proofs in the case.

"Finding 2. On April 10, 1894, the United States of America granted letters patent No. 518,038 to Knudtson and Uhri, which covered inventions for building and constructing machines to make box blanks. This Knudtson and Uhri patent is a pioneer patent on a machine for making

wirebound boxes of veneer or thin wood, with binding wires and step-mitered cleats."

Volume 1, page 142, as follows:

"Finding 3. These inventions of Howenstine and of Knudtson and Uhri, and the patents covering the same, respectively, were broad, basic and fundamental."

Page 143 as follows:

"In each of its claims the Knudtson and Uhri patent is limited to guides for the moving cleats and does not cover machines having no cleat guides, or machines in which the box blank structure is assembled in a work holder, or former, and held in position prior to the nailing operation."

Pages 145 and 146, as follows:

"Finding 11. The box invented and patented by Howenstine had intercellular ends, and the corners for the full length of the box were beveled. Prior to 1898 the complainant constructed boxes with intercellular ends, and in 1898 he began, without suggestion from any outside source, the construction of boxes with solid ends.

"In such solid boxes, the front corners for the full length of the box was made to lap, that is, one of the veneer sides projected over the other veneer side to the latter's full thickness; at the other corners there was an incomplete lap, that is at right-angles with the bottom of the step miter [fol. 421] there was cut a V-shaped groove in the veneer to the depth of one-half of the veneer's thickness and the veneer was bent along this groove until the step miters fit into each other; but no patent was taken out on this solid box.

"In the first week in July, 1904, and after the invention of the Brown machine, hereinafter referred to, the box known in this case as the lap box was first made by the South Bend Healy Box Company in its factory. Such box consists of a plurality of straight edged sheets of veneer bound to cleats, the cleats and sheets being so placed in relation to each other that when folded one of the sheets completely overlapped the other sheet at the longitudinal

corners. Such first box was made upon the Rosback machine, in connection with a machine called the 'Former,' or 'Woodholder,' hereinafter referred to.

"Each of the three styles of boxes above mentioned have been used commercially and are commercial boxes, but the lapped box except in specialties that require intercellular ends for circulation of air inside the box, is superior to the other forms of box and will, with the trade, supersede the other forms of box."

Pages 172 and 173, as follows:

"Finding 28. Up to the first week in July, 1904, the creased box with partly lapped corners (except the upper front corner which fully lapped) was manufactured by the South Bend Healy Box Company. About July 2d or 3d, 1904, the defendant Lavenberg completed a cheap step-miter machine, or saw table, at a cost of about $100 for the South Bend Healy Box Company, and he also made a former for the Rosback box-blank machines; and said two new machines were both put into use by the South Bend Healy Box Company and the Rosback step-miter machine was discarded. The lapped box, the invention of which is one of the matters in dispute in this case, was thereafter made by the South Bend Healy Box Company, and the manufacture of a creased box ceased. About 800 sample boxes, both creased and lapped, were made before August 31, 1904, by the South Bend Healy Box Company, and sold to a consumer in South Bend, Indiana, who used them in his business."

[fol. 422] Page 179, as follows:

"Finding 42. Norman E. Brown completed said box-blank machine and delivered the same, with said plate bearing the number and date of said patents thereon to the South Bend Healy Box Company upon August 31, 1904, which company duly accepted and installed the same in its plant and began making box blanks thereon."

Page 199 as follows:

"Finding 65. The defendant Inwood with the knowledge and consent of Robinson and Lavenberg went to Washing-

ton, D. C., on September 22, 1904, to ascertain whether the invention of the box blank machine built by said Brown as aforesaid would infringe the Knudtson and Uhri patent of complainant, and the copy, plans and drawings of said Brown machine, omitting, however, its guides for the 'former' or work-holder, was exhibited to Mr. Dalton, a patent lawyer of Washington, who gave to Inwood his opinion in writing.

"Finding 66. While said Inwood was in Washington as aforesaid, he caused an investigation and examination of the records to be made to ascertain whether there was any defect in the complainant's title to the Knudtson and Uhri patent.

"Finding 67. Upon the return of said defendant Inwood from Washington as aforesaid, his co-defendant Robinson, being advised of the doings of Inwood while in Washington respecting the Knudtson and Uhri patent, sought out said Knudtson and Uhri, original patentees of said letters patent No. 518,038 and induced and procured them on October 6, 1904, to quit claim unto him all right, title and interest in and to said Knudtson and Uhri patent, in consideration of the issue and delivery to them of certain stock in the corporation which it was then proposed to organize by said defendants, Robinson, Inwood and Lavenberg."

[fol. 423] Deposition of Richard G. Inwood

Volume II, page 1072, as follows:

I first consulted in Chicago, Mr. Parker, a patent lawyer, of Parker & Carter, and he gave me a written opinion. I had first consulted Mr. Oltsch, a patent lawyer of South Bend, before I consulted any patent lawyer in Chicago. I then consulted Mr. Theodore Dalton, a patent lawyer of Washington.

It was after I consulted all the others that I consulted Mr. Dyrenforth, and after I had been informed by parties in St. Joe that Mr. Healy had finished with Mr. Dyrenforth. As soon as I learned of that fact I went to him to consult with him. It was the latter part of September that I got the opinion from Mr. Dalton, the last week in September.

Mr. Dalton gave me a written opinion.

Page 1090, as follows:

I am not quite sure who first suggested the lapping of the veneer at the corners of the box, but I think it was one of the people that we tried to sell the box to, some firm that we sold boxes to. I think it was, well, I don't know, probably Mr. Russ of the Russ Company, South Bend, Indiana. I know he suggested it, but whether he suggested it first I don't remember. It was suggested a great many times.

Page 1092, as follows:

United States patent No. 799,854, to R. G. Inwood and P. C. Lavenberg, issued September 19, 1905, for a box, application filed October 17, 1904, a copy of which is here shown me, is our patent covering the lapped cornered box. The single claim of this patent reads:

"A wirebound foldable box blank comprising a specialty of straight edge sheets with wires connected to and connecting said sheets and step-mitered cleats secured to said sheets to terminate short of the latter, a distance equal to the thickness of a sheet, and whereby when folded at right angles the end of one sheet overlaps the end of an adjacent sheet."

There is nothing in the claim referring to staples.

Q. So that the claim simply covers the feature of extending the edges of veneer over the end of the cleats so as to make the veneer lap at the corners of the box?

[fol. 424] A. The claim is on a box blank.

Q. You have read the claim, can't you answer the question?

A. I think the claim explains and answers that question. I don't know how differently you wish me to answer.

Q. Does this patent cover the lapped box you were making in July, 1904?

A. This covered the box in this way. This is a patent on the blank, from which the box is made, and such a box could not be made without using a blank as described there.

Pages 1102 and 1103 as follows:

The photograph exhibited had a piece of angle iron which served as a guide to the former or workholder as a com-

plete former, but the drawing and description of the machine, which Mr. Oltsch went to Washington to see if it was patentable, did not have guides as illustrated in the photograph.

Mr. Oltsch went to Washington to ascertain whether the Brown machine and the improvements I suggested on it, we will say, were patentable or not. The Brown machine had no guides through which the cleats were moved. The cleats are held fast in the workholder of the Brown machine, if you call them guides. They were not moved through. They were held fast in the channel iron in which they were placed. I think the drawings and specifications submitted to Mr. Dalton were made for the most part by Mr. Oltsch. I made perhaps one or two pencil sketches illustrating some point I was talking on. I should say that the description made to Mr. Dalton of the machine which I was inquiring about did not contain any guides whatever. I rather think the photograph shown Mr. Dalton showed the guide I speak of, the piece of angle iron against which the former was butted and pushed in.

I think some of the photographs introduced in evidence were from the same place as the photographs that we took to Washington. The two photographs in evidence show guides for the former as an entirety.

Q. And these guides constituted a mechanical device for guiding the cleats through the machine, didn't they?

A. Not in the sense of being mechanically equivalent for guides as shown in the Knudtson and Uhri patent, no. As a means for guiding the former as an entirety through the machine they might.

[fol. 425] Pages 1321, 1322, 1323 and 1324 as follows:

The first four pages of the document known as the Dalton opinion offered in evidence marked "Complainant's Exhibit 141," and is in the words and figures following, to-wit:

Opinion

The question here to be considered is whether or not a

by my client, is an infringement of letters patent granted to Thurston L. Knudtson and Jacob Uhri, No. 518,038, dated April 10, 1894.

At the outset it would be well to explain what constitutes infringement, and it may be stated that infringement of a patent occurs when the thing patented is made or used by others, but as the claims of a patent are the "metes and bounds" of the grant, it requires an analysis of the claims to determine whether or not the thing made and alleged to infringe is within the scope of the claims of the patented thing, for it is a well settled practice that a patent cannot be construed to include any more than its claims signify, and as a rule the patentee is held to a strict interpretation of his claims, as will appear hereinafter, and this is especially true when the prior art contains devices or machines of similar nature and the patentee was required to limit his claims to the details or specific construction of his particular invention, and particularly when the records of the Patent Office disclose that the patentee was compelled to make such limitations in order to obtain the patent.

Having stated the general rule for determining infringement, we will now consider the construction of the machine above referred to, in which Mr. R. G. Inwood, of South Bend, Indiana, is interested.

Mr. Inwood has carefully explained the construction and operation of his machine to me and I have before me photographs of the same. This machine consists, broadly, of a substantially flat table supported on a suitable frame in which are mounted toothed rollers and machines for imparting an intermittent rotation to said rollers, which latter feed the material through the machine, whereby the material is given an intermittent feed, and the feed rollers slightly project through an opening or transverse slot in the table. Mounted above the table are suitable staple forming and driving devices, which are relatively adjustable and which are operated intermittently, and [fol. 426] the operating means so arranged as to cause the staple formers and drivers to alternate in their action with the intermittent feed rollers, whereby the material fed beneath the staple formers and drivers will be at a stand-

are guided and fed beneath the staple drivers, so that the staple when driven into the material forming the box blank will straddle the said wire, which forms a binding for the box. The box blank consists of cleats which may be either step-mitered at suitable points in their length before they are fed to the machine, or the step miter may be formed after the blank has been fed through the machine, but the object of the machine is to secure a sheet of veneering and a strengthening or binding wire to the cleats, and in Mr. Inwood's machine; the material of which the box blank is formed to put into a suitable former or frame which has side pieces in which the cleats are clamped, and also has means for holding the sheet of veneering or backing on top of the cleats. On the bottom of the former and preferably upon the lower face of the side pieces thereof, are rack bars which are adapted to engage with the teeth of the feed rollers. The former with the sheets and cleats clamped therein is fed through the machine by the intermittently operating feed rolls, and the staple formers and drivers operated intermittently to drive a staple through the sheets and into the cleats. When the first staple is driven, the binding wire, which is fed from the wire reels, is engaged by the staple and then by the continued feed of the former through the machine, the wires are drawn from their reels and engaged by the staples. A suitable guiding means for the strengthening wires is provided adjacent to each staple driver. The box, when completed, is quite similar to the box shown in the patent to Howenstine, No. 453,479, dated June 2, 1891, except that the strengthening wires are adjacent to the cleats and the staples penetrate the cleats as well as the sheet. It is to be noted that this machine has a flat table so that the former carrying the box blanks will be unobstructed in its movement through the machine, and it is also to be noted that the cleats do not slide in or have any movement independent of the former, as the cleats are clamped in the former.

The construction and operation of the Knudtson & Uhri patent is plain from an examination of the copy herewith attached, and inasmuch as an infringement results when the defendant employs the elements or equivalents of the elements claimed in the patent for substan-

[fol. 427] tially the same purpose and with substantially the same result, we much now examine the claims of the Knudtson & Uhri patent.

Claim 1 recites:

"1. In a machine for forming box blanks by fastening the sheets and strengthening wires to reinforcing cleats, the combination of guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally in their guides and with a sheet through the machine, an intermittently actuated staple driver adjacent to the path of each cleat alternating in its action with said feed mechanism, to fasten the sheet, by successive operations, to the cleat; and means for guiding strengthening wires with the cleats and sheet across the staple drivers, substantially as and for the purpose set forth."

This claim is probably the broadest claim in the patent, and if we find that it is not infringed obviously the other claims would not be infringed, because the other claims in addition to reciting the elements contained in the first claim, include other elements and qualifications of those elements.

The first element "guides for the cleats" is not present in the machine manufactured or used by Mr. Inwood, because, as before stated, the table on which the former with the box blank is placed, has no guides whatever, and the cleats are not guided through the machine mechanically. The "intermittent feed mechanism for advancing the cleats longitudinally" is used, inasmuch as the toothed feed rollers are driven intermittently and they advance the cleats longitudinally, mediately, through the advancement of the former, which engages with the teeth of the rollers, but there is no intermittent feed mechanism for advancing the cleats longitudinally in their guides because there are no guides. The cleats are advanced longitudinally with a sheet through the machine but not in guides. The next element of the claim and the operation thereof, namely, "an intermittently actuated staple driver adjacent to the path of each cleat alternating in its action with said feed mechanism, to fasten the sheet, by successive operations, to the cleat" is employed and practiced in the Inwood machine.

The next and last element of the claim, namely, "and means for guiding strengthening wires with the cleats and sheet across the staple drivers" is also used in the Inwood machine, inasmuch as he employs a small roller in front of the staple drivers around which the strengthening wire is fed and guided.

[fol. 428] Rebuttal Deposition of William P. Healy

Page 1447:

Q. I will ask you what machines are referred to in the option which you have just read?

A. The Rosback large set, and the Rosback small set that we have been heretofore talking about in this case.

Q. Are those the same sets of machines which were sent down to the South Bend Healy Box Company at South Bend?

A. The large set was sent down to the South Bend Healy Box Company, but the small set never was sent to that company. It was sent to Staley & Robinson. The South Bend Healy Box Company never had anything to do with the small set of machines whatever, but they were shipped to Staley & Robinson.

Q. These are the same machines to which your testimony in chief and the testimony of the defendants have related as the Rosback machines that were sent to South Bend?

A. Yes, sir.

Pages 1450 and 1451:

Q. I call your attention now to the large set of machines, known as the Rosback machine, which was sent down to the South Bend Healy Box Company, and ask you to state what condition those machines were in at the time they were shipped down to South Bend?

A. They had laid for five years, from 1899 to 1904, around Mr. Rosback's premises, and the little premises that I had rented myself near Mr. Rosback's shop, that they had become rusty and covered with dust, and when Mr. Rosback and myself were at the Paris Exposition these machines were moved from 60 South Canal Street to 2525 Leo Street in Chicago, a distance of two or three miles, that they laid there and one of them was entirely apart,

that in the step-miter machine and the nailing machine, some parts were taken off and I told them all about it, and said, "there they are," I said some parts may be missing for all I know. I said, "There they are, I think they are out of repair, and you can put them in repair and take them down there, and use them and do the best you can with them," and they agreed to that.

Q. When these machines were sent down to South Bend, state if you know whether any injury was received by them in transit?

[fol. 429] A. Yes, sir, there was a collision,—Mr. Inwood told me this,—there was a collision, and two legs of the box-blank machine were broken,—

Q. Collision of what?

A. Collision on the Lake Shore Road.

Q. Collision of what?

A. Two trains on the Lake Shore ran into each other, anyhow they were injured and I know they worked a great deal better the last time I had them up in Chicago on exhibition than Mr. Rosback could ever make them work down in South Bend.

Q. Were they ever repaired by anybody?

A. They tried to repair them there. Mr. Rosback took a contract from Mr. Inwood to set them running, and that, of course, included repairs, but Messrs. Robinson and Inwood agreed with me to put them in repair, but they never have been put in repair.

Pages 1503 and 1504:

Q. What conversation, if any, did you ever have, in which you said, in form or substance that you would loan the small set of machines to the South Bend Healy Box Company?

A. I never had any such conversation of that kind about loaning the small set.

Q. What were those machines built for?

A. For promotion purposes. First to be exhibited at Paris, and then to be taken back to the United States and then to be taken around, they were light and portable enough.

Volume III, pages 1773 and 1774, as follows:

Q. Mr. Healy yesterday testified that there were guides on the Brown machine, and that it was operated without guides, referring to the workholder or former. Will you kindly state what is the fact as to the impossibility of operating such a machine without guides on the sides?

A. The machine cannot be operated without guides and I know this to be true for the reason that we have a claim in a patent allowed——

Mr. Healy: I shall object to any testimony in regard to what is in a patent as being hearsay. Let him produce the patent as the best evidence.

[fol. 430] A. —on a machine similar to the Brown machine, except that it has no guides, and the drawings which were submitted to Mr. Dalton and upon which he based his opinion was a machine without guides, and the construction of the machine was such that the only movement imparted to the former in feeding through was given by a roller extending across the machine, shaped like, a little like a bread roller except that on its surface it had raised parts and depressions extending the length of the roller, corresponding somewhat to the gear-wheel on the Brown machine, so that there was no necessity of the use of a guide, as the roller would engage the former at whatever part of the machine or table the former was placed, and the angle irons spoken of by Mr. Healy were entirely missing. The table was perfectly smooth, containing nothing in any way to act as a guide to the former. In the construction of the upper part of the machine mechanism was employed which would place the staples in their proper position on the blank.

Page 1830 as follows:

The Brown machine was not operated without any guides since it came to the South Bend Healy Box Company. It always has guides for the former or workholder to guide it through the machine.

I can explain how that machine could be operated without guides. It could in this way by using a feed roller

in the place of the gear employed in the Brown machine, this feed roller extending across the machine from one side frame to the other, and adapted to engage the former at whatever position the former would enter the machine, and pulling it through the machine and by the employment of mechanism in the upper part of the machine to correctly place the staples in the place where they should fall. It could also be done by an apparatus attached to the upper part of the machine which would move the former laterally just prior to the driving of the staples so that the edge of the former would keep a certain position or occupy a certain position in relation to the staple-forming and driving mechanism. It could also be done by connecting the formers in a series or by making an endless chain arrangement of the formers, which would be fed through the machine by sprocket-wheels at the end of the machine and which would require no guide. It could also be done by leaving the blank stationary and entirely without guides and moving the stitching mechanism over the blank so that the staples would be driven [fol. 431] where desired. All of these plans, I believe, would not require guides.

Pages 1831 and 1832 as follows:

The former or workholder in the Brown machine goes through with an intermittent motion, jerky motion.

Q. Is not that liable to jar the former, to make it vary from a direct line if it has not guides?

A. If it is fed through in the way the former was in the Brown machine as it existed at that time that would be true.

Q. So that it could not be used at that time unless it had guides and was not used without guides?

A. It was not used on the Brown machines without guides.

Q. Now, you exhibited some drawings to Theodore Dalton at Washington of the Brown machine?

A. No, I exhibited photographs of the Brown machine and drawings of the Brown machine, different in some respects.

I exhibited several sketches to Mr. Dalton of parts of machine. None of them were complete, not giving the machines in their entirety of detail. The reference in Mr.

Dalton's opinion to an Inwood machine is a machine described to him from the photographs and drawings and the explanations therewith. The photographs, drawings and explanations together of the Inwood machine were of a complete machine. I presume that is what he refers to as the Inwood machine. He stated in that opinion that that machine had no guides on the table of the machine for the former.

Pages 1898 and 1899 from the decree entered November 2, 1909, as follows:

That the said defendants Richard G. Inwood and Perry C. Lavenberg made the following inventions relating to wirebound packing boxes, viz.:

1. A combined Carriage and "Former" for Wire Bound Blank Machines. Application for a patent on said invention was made to the Commissioner of Patents of the United States by said Richard G. Inwood and Perry C. Lavenberg October 14, 1904, said application being Serial No. 228,443. This invention includes the non-adjustable and the adjustable "Former" or workholder with spacing blocks for the cleats of the box blank and mechanism for holding the blank in place while being fed through the machine.

[fol. 472] 2. Improvements in Wire Bound Boxes. Application for a patent on said inventions was made to said Commissioner of Patents, by Richard G. Inwood and Perry C. Lavenberg, October 27, 1904, said application being Serial No. 228,765.

3. Means for Making Box Blanks. Application for a patent on said invention was made to said Commissioner of Patents by said Richard G. Inwood and Perry C. Lavenberg, October 27, 1904, said application being Serial No. 230,249.

4. Box Blank Machines with Traveling Staplers. Application for a patent on said invention was made to said Commissioner of Patents by said Richard G. Inwood and Perry C. Lavenberg, January 3, 1905, said application being Serial No. 239,415. That said Richard G. Inwood and Perry C. Lavenberg wrongfully made application to the Commissioner of Patents of the United States for

letters patent on said invention on behalf of said National Wire Bound Box Company, which latter company, also, wrongfully obtained letters patent in the United States and in several foreign countries on some of the said inventions, as hereinafter set forth.

It is ordered, adjudged and decreed that said Richard G. Inwood and Perry C. Lavenberg are now, and during all the time since the first day of June, 1904, have been jointly and severally trustees of the complainant, and that as such trustees they made each and all of the foregoing inventions for and on behalf of and for the sole use and benefit of said complainant.

Defendant's counsel now offers in evidence the affidavit of defendant's expert, John Howard McElroy, to become part of the record in the Saranac suit at bar, Equity No. 2029.

AFFIDAVIT OF JOHN HOWARD MCELROY ON BEHALF OF DEFENDANT

STATE OF ILLINOIS,
County of Cook ss:

JOHN HOWARD MCELROY, being duly sworn, deposes and says:

I am the John Howard McElroy who made an expert affidavit on behalf of the defendant in a suit of Wirebounds Patent Company and 4-One Box Machine Makers, Plaintiffs, v. H. R. Gibbons Box Company, Defendant, in the United States District Court, Northern District of Illinois, [fol. 433] Eastern Division, in Equity No. 2689, and I also testified as an expert in said suit, the direct examination of my deposition being found on pages 15 to 116 of defendant's record in that suit.

I have carefully studied the deposition of Roscoe Steele in the present suit of the same plaintiffs against Saranac Automatic Machine Corporation, defendant, in Equity No. 2029, and have examined the exhibits introduced in evidence in this deposition, and after so doing I visited the plants of H. R. Gibbons Box Company, Chicago, Illi-

nois, and of Maxwell Brothers, Inc., Chicago, Illinois, and at these plants carefully inspected and observed the machinery there in use for the manufacture of wire-bound box blanks and boxes, and the methods employed in the use of these machines. As a result of these investigations I have discovered nothing which in any way alters my views or opinions as expressed in said previous affidavit and deposition.

In the first place, defendant's machines as testified to by Roscoe Steele appear to be exactly the same, so far as the work guiding and feeding means are concerned, as the machines complained of in the said Gibbons suit. Those machines all involve parallel and stationary cleat guides, parallel and intermittently operated endless feed chains or link belts, the same sheet spacers on said belts and the same cleat pushers on the link belts or chains, there being never more than four cleat pushers for each blank. The alleged novelty of the machine patents in suit is practically all in the workholding and work-feeding means, although in one patent the portable workholder is claimed in combination with the stapling mechanism and some other elements which were old and well known. Therefore, the work guiding and feeding means, and the work positioning means, are the only pertinent portions of defendant's machines here, as was also the case in the Gibbons suit, and a comparison of defendant's machines here, as described by Roscoe Steele and as observed by me at the Gibbons plant and at the Maxwell plant, shows that the machines complained of in this Saranac suit are, so far as said pertinent portions are concerned, substantially and in effect the same as those complained of in the Gibbons suit, and therefore, for the reasons given in my previous affidavits and testimony, I find that my views and opinions as therein expressed still hold and apply in all respects here.

These views and opinions are not altered in any respect whatever by the injection into this Saranac suit of the so-called precleating as one of the things complained of as [fol. 434] an infringement of the patents in suit. I have carefully inspected the so-called precleating method, as practiced, for example, on the machines at the said Maxwell plant, and I find that while the immediate product (the preliminary blank) of this method is different from the immediate product of the alternate cleat method, the ma-

chinery for practicing the two methods is exactly the same in each case, and that the method is fundamentally the same in each case, for the practice of the so-called pre-cleating method, as described by Roscoe Steele in his deposition and as witnessed by me in practice, is performed each time upon a machine having only four cleat pushers for each blank, whereby only four loose cleats can be pushed or propelled in the stationary cleat guides. Therefore it becomes necessary, in the making of an eight-cleated blank on such a machine, to adopt some other provisions for pushing the additional four cleats along in the guides, and this is done by what is called precleating two of the sheets of each blank. In other words, in making an eight-cleated blank by the precleating method, every other section has loose cleats to be secured in place by the stapling mechanism of the blank machine, while the other two sections have cleats previously attached thereto by what is called a pre-cleating machine. Therefore, in making an eight-cleated blank by this method, two of the sections thereof have their cleats attached previously to the insertion of these two sections of the blank in the stationary guides of the blank making machine. The previously attached cleats, however, are pushed along the guides, and are automatically positioned therein by the spacing of the sheets by means of the small spacers on the feed chains or link belts over which all the sections are laid by the operators or attendants of the machine, by hand, the stock feeders standing close enough to drop the sheets and cleats in place on the long runway of defendant's machine, during the actual operation of the feed belts and stapling mechanism on the blank ahead, and without stopping the machine, for in the performance of defendant's method on its machines, the blank materials are not set up into complete blanks before they are inserted in the stapling machine, as is the case in the patents in suit; but, to the contrary, in the operation of defendant's machine the cleats and sheets are fed piecemeal, so to speak, to the constantly operating blank machine, so that the complete set-up for each blank is brought about in the machine itself by the co-operation of the moving work-feeding means with the operatives, who stand near by and place the sheets and cleats successively [fol. 435] in place on the runway of the machine. In all of defendant's machines there are no cleat spacers, such as

those employed in the patents in suit, and there are no cleat spacers of any kind, as none are necessary. In all of defendant's machines in this Saranac suit, as in the Gibbons suit, according to the description thereof in the deposition of said Roscoe Steele and according to my own observations of defendant's machines, the cleat pusher system of the old Rosback patents is employed, and the sheet spacer system of Greenstreet, Lipps & Sprunger and others is employed, as distinguished from the cleat spacer method and unspaced sheets of the patents in suit.

In other words, in defendant's so-called precleating method, just as in defendant's so-called alternate cleat method, the cleats are all pushed in stationary grooves, and there is no such pushing of cleats in the patents in suit, for in the patents in suit the cleats rest upon a support which moves bodily through the blank machine, in fixed relation to the entire blank, so that in the patents in suit there is no friction between the cleats and any stationary portion of the machine, upon which the blanks are moved. Fundamentally, therefore, the so-called precleating method is the same as the so-called alternate cleat method, both practiced on identically the same machine, with the advantage that with defendant's machines and methods either a four-cleated blank or an eight-cleated blank can be made on one and the same machine without changing the machine. In fact, on defendant's machines four-cleated blanks can be turned out rapidly to fill an order, and without stopping the machine the production can immediately change to eight-cleated blanks by merely precleating two of the side wall sections of each blank.

As previously stated, this precleating is done before on what is called a precleating machine, that is to say, a machine for attaching cleats to two sections of each blank before the wires are attached thereto subsequently in the blank machine. In the production of alternate cleat blanks, or four-cleated blanks, as they are sometimes called, by defendant's machinery and method, four of the cleats pass through a precleating machine by which they are attached to the heads or end walls of the box, before these cleats finally enter the ultimate box along with the preliminary blank having the other four cleats. In the production of eight-cleated blanks by the so-called precleating method complained of, as described by Roscoe Steele in his depo-

sition and as actually observed by me, four of the cleats of [fol. 436] each blank pass through the precleating machine by which they are attached to two sections of the blank before these sections pass through the so-called blank-making machine which has the stapling mechanism for stapling the binding wires in place to flexibly connect together the different sections of each blank. In the alternate cleat method or in the precleating method, so called, as practiced by defendant's licensees (I have no knowledge that the defendant Saranac Automatic Machine Corporation has ever used any method or has ever manufactured any wirebound boxes of any kind), all of the cleats are pushed along stationary guides during the fastening of the [illegible] sheets and cleats, and in each method some of the cleats of each blank must pass through a precleating machine prior to their absorption or entry into the structure of the ultimate box. Therefore, the so-called precleating method, as practiced by defendant's licensees, is in principle exactly the same as defendant's alternate cleat method, and is merely a different species of the same method fundamentally involved in the alternate cleat method. In other words, the so-called alternate cleat method is merely a development of the old Rosback pusher method, involving the same pusher system; and the so-called precleating method is also nothing more than a development of the old Rosback pusher method, involving fundamentally in each case the pushing of the cleats in stationary guides, and the spacing of sheets apart at their adjacent edges, by means of sheet spacers of the kind employed by Groenstreet or Lipps & Springer, or others, as fully discussed in my affidavit and testimony in the Gibbon suit. The so-called alternate cleat method and the so-called precleating method, as practiced on defendant's machines, are merely different species of the same fundamental or generic method, as in each case cleat pushers are used for pushing any loose cleats along the stationary guides, and friction or retardation of the cleats is employed to insure firm engagement of their rear ends with the said pushers, and in each case sheet spacers are employed between the edges of the sheets or side sections of the blank (there are absolutely no sheet spacers in any of the patents in suit), whereby the only specific difference between defendant's two methods is that in the alternate cleat method

the precleating is done on the heads or end walls, whereas in the so-called precleating method by which an eight-cleated blank is made, the precleating is done on two side wall sections of the blank; but in either method a precleating machine is necessarily employed, and at least four [fol. 437] cleats of each blank must be passed through such precleating machine before they can enter the ultimate box. And in no case do defendant's methods involve the use of any spacer blocks interposed between the ends of cleats to space them apart in the manner of the patents in suit, and in no case is there any step involving the setting up of a complete blank (except the wires and staples) before introducing such blank into the machine for attaching the wires thereto. In the methods employed in the patents in suit, each blank is set up in its entirety (except the wires and staples) by means of a workholder having spacer blocks interposed between the ends of the cleats, before the blank is introduced into the machine for attaching the wires; but no such method step is employed in any of defendant's methods.

Now when the precleating method is employed, to produce an eight-cleated blank (precleating does not necessarily result in an eight-cleated blank, as precleating might easily result in a four-cleated blank or other things), there are only four cleat pushers, as previously stated, and the ends of these cleat pushers are interposed between the ends of adjacent cleats, but that does not make them cleat spacers, of course, and does not make them the cleat spacers employed in the patents in suit. To the contrary, these cleat pushers of defendant's machines, even in the precleating method, perform only the one function of pushing loose cleats under their unattached sheets, and cannot possibly perform the function of holding the cleats immediately behind from jumping ahead, and cannot possibly prevent misplacement or disarrangement of the cleats immediately in rear of said cleat pushers. This is because the cleat immediately in rear of each cleat pusher is already attached to its sheet or side section, and is being pushed along the guides by this sheet or side section, and is incapable of disarrangement or of jumping ahead as a result of the jerky or intermittent feed motion. In all of defendant's machines, therefore, the cleat pushers each have only the one function of pushing loose cleats along the station-

ary guide-ways. For the previously attached cleats, in defendant's precleating method, there are no cleat pushers whatever, as between the rear ends of these cleats and the front ends of the loose cleats behind there is absolutely nothing interposed whatever, and the propelling and positioning of the previously attached cleats are both done automatically by the feeding and positioning of the sheets to which they were previously attached by the said so [fol. 438] called precleating machine. Therefore, the cleat pushers of defendant's machine, in the so-called precleating method, are in no sense spacer blocks, as they function only on their front faces where they engage the rear ends of loose cleats, and never function on their rear sides, which face backwardly toward cleats behind; whereas in the patents in suit the spacer blocks, according to the teachings of the patents in suit, must function not only on their front faces, where they engage the rear ends of cleats, but also on their rear sides where they also necessarily must be adapted to engage the front ends of the cleats immediately behind.

Now in the Roscoe Steele deposition, I observe that he gives it as his opinion that in the patents in suit the rear sides of the spacer blocks could be cut away, leaving only the front half of each block, without interfering with the operation of the machine or the method practiced thereon. In my judgment, this is entirely wrong, for it wholly disregards the obvious difficulty that would immediately develop, namely, the failure of any rectification of any disarrangement or misplacement of the cleats. In defendant's machines and methods there is automatic rectification, so to speak, of any misplacement or disarrangement of loose cleats, as the retardation afforded by the guides and other parts will hold the cleats back until overtaken by their cleat pushers, before the stapling operation occurs, if any of the cleats are forwardly misplaced or are jumped ahead by the jerky or intermittent feed motion; but in the patents in suit there is no such automatic rectification of misplacement or disarrangement of the cleats, and there can be none, for in the patents in suit there is no possibility of any such misplacement or disarrangement, as the cleats fit at their front ends, as well as at their rear ends, against the spacer blocks; and, furthermore, should the rear sides of the spacer blocks be cut away, leaving only the front

halves of these blocks in the patents in suit, as suggested by the witness Roscoe Steele, and should the cleats be forwardly misplaced or jump ahead out of contact at their rear ends with the front sides of the spacer blocks, there is nothing to then bring the cleats back into correct position just before the stapling operation. Any such alteration and mutilation of the portable workholder of the patents in suit would be at variance with the teachings of those patents, and would result in the production of many imperfect blanks very likely, inasmuch as the cleats on some of the sections would be too far ahead and the blanks would [fol. 439] not fold properly. For example, if the operatives or persons doing the work should misplace the cleats too far ahead in any such reconstructed or mutilated workholder, the rear portions of the spacer blocks having been omitted, there would then be absolutely nothing which could by any possibility automatically rectify any such mistake, as in the patents in suit there is absolutely nothing to engage and force the cleats back at their rear ends against the front sides of the spacer blocks. In all of defendant's machines, any loose cleats inserted are placed in stationary guides in front of the oncoming cleat pushers, and the friction of the guides alone would ordinarily be sufficient to hold the cleats against movement until their rear ends are struck by the cleat pushers, and if not, then other elements interposed in position to engage the cleats, such as defendant's clincher blocks or other friction devices, will automatically retard the cleats long enough to bring their rear ends firmly into contact with the cleat pushers before any staples are inserted. In defendant's machine the loose cleats can be inserted an inch or two or three inches, or perhaps more, ahead of their proper positions, when they are initially inserted in the machine, without producing defective blanks, for the simple reason that misplacements of the cleats or disarrangement thereof is automatically rectified by the machine itself; but in the machine of the patents in suit, and in the method employed thereon, there is no such automatic rectification, and there can be none, for the reason given.

Now in the so-called first White machine, testified to by the witness Roscoe Steele, on which he says only eight cleated blanks were made, the situation is no different, as according to his testimony this machine had only four cleat

pushers for each blank, and none of these pushers had the function of spacer blocks, as in the patents in suit. In other words, in this so-called "first White machine," as I understand it from Roscoe Steele's deposition and the exhibits, the so-called "set up of spacer blocks" was exactly the same (see page 161 of Roscoe Steele's deposition) as the set up of spacer blocks on defendant's other machines; and all that I have said applies, therefore, with equal force to the said so-called first White machine and to the method practiced thereon.

Now in this Sarsaparilla suit the Roscoe Steele testimony and some of the exhibits have much to do with the clinch blocks employed on defendant's machines and with the so-called "cleats" of the said first machine, and with the action of these elements on the cleats. I find nothing in [fol. 440] these elements which has any relation to the patents in suit, and so far as their function of positioning the cleats, or rectifying the misplacement or disarrangement thereof is concerned, all that is found in the prior art, as, for example, in Rosback and Knudtson & Uhri, and others. According to these patents it was very common, as shown, for example, in Knudtson & Uhri No. 518,038, and Uhri No. 698,809, and Rosback No. 614,218, to provide devices for pressing against the cleats to develop enough friction or retardation of the cleats to insure their firm engagement at their rear ends with the cleat pushers, or to insure the correct position of the cleats while passing under the feeder; and in Rosback No. 625,958 springs *d* are disposed in position to project into the stationary cleat guideway, so that the cleats will be engaged and pressed outwardly against the outer walls of the guides, and so that the cleats will encounter enough retardation to crowd them back against the cleat pusher D mounted on the endless chain or link belt C, all of which is an arrangement very similar to defendant's machine, and operating on the same principle. These devices for engaging the cleats and holding them laterally against their guides to insure alignment, and to retard them or hold them back against their pushers, are common in the prior art, but are absolutely nowhere found in the patents in suit. The teachings of the patents in suit are such that the use of such devices would be contrary thereto.

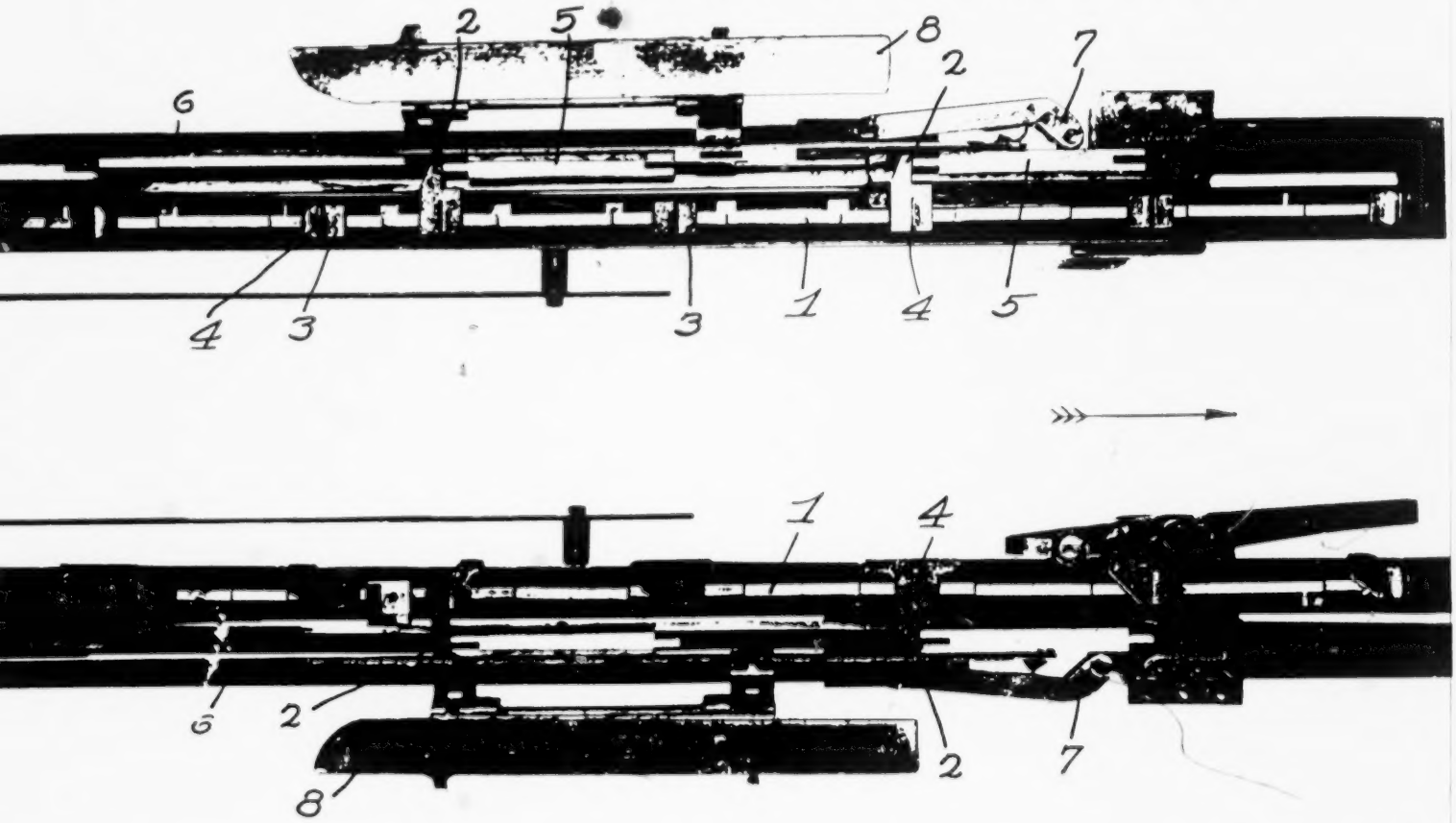
Again, according to the deposition of Roscoe Steele and some of the exhibits introduced in evidence by plaintiffs, defendant's devices for holding the sheets down on the cleats, and for keeping the blanks from jumping up, are apparently regarded as having some resemblance to things found in the patents in suit, but in my judgment this is not true. Devices for bearing down on the blanks to hold the sheets down on the cleats are very common in the prior art, for example, in said Rosback patent No. 625,658, the sled runner members *k* are arranged in position to present their lower edges upon the tops of the blanks to hold the sheets down on the cleats, and these members can be raised and lowered when necessary, and what defendant employs is practically the same thing.

In my judgment, therefore, the alleged infringing machines in this Saranac suit are substantially no different from those in the Gibbons suit, and are distinguished from the patents in suit for the same reasons given in my affidavits and testimony in the Gibbons suit, and are similar [fol. 441] to the prior art, and, in fact, follow the teachings of the prior art, fundamentally, for the reasons given in my said previous testimony. Also, in this Saranac suit the methods complained of as an infringement are, in my judgment, fundamentally not different from the methods complained of in the Gibbons suit, follow the teachings of the prior art, and do not follow the teachings of the patents in suit, for the reasons explained in my said former testimony in the Gibbons suit.

(Here follows Defendant's Exhibit No. 4, side folio 441½)

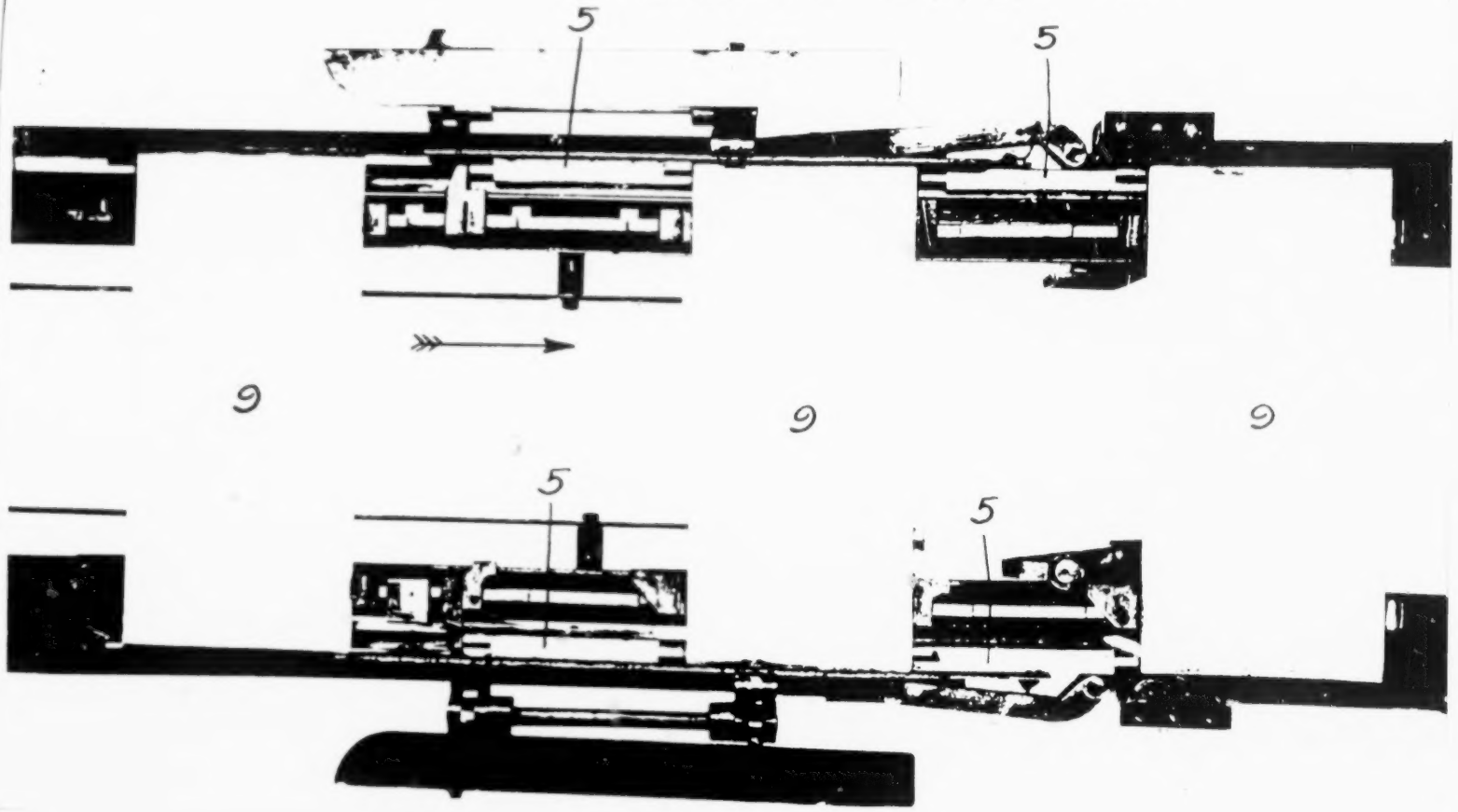
While preparing this affidavit I have before me a photograph looking down on one of defendant's machines, showing stationary guides, feed belts, cleat pushers, sheet spacers, clinch blocks and clamps for holding the blocks down in place, and other parts, this photograph being marked "Defendant's Exhibit No. 4." In this photograph the endless feed belts 1 are provided with the cleat pushers 2, two for each blank, spaced apart a distance greater than the length of two cleats, and these link belts have other blocks 3, and all of the blocks have the sheet spacers 4 thereon. The cleats 5 slide in the stationary guides 6, which are parallel and which extend longitudinally of the machine, and the feeding movement of the work is in the

DEFENDANT'S EXHIBIT NO. 4




Defendant's Exhibit No. 4—Photograph of Defendant's Machine.

DEFENDANT'S EXHIBIT NO. 5




**Defendant's Exhibit No. 5—Photograph of Defendant's Machine.**

direction indicated by the arrow. The staple clincher blocks 7 are mounted in position to swing into and out of the path of the cleats, primarily to fix the staples on the under sides of the cleatless sheets, and incidentally, if other means are not employed, to press against the cleats and insure having the latter in such position that their rear ends will be in firm engagement with the cleat pushers during the stapling operation. The clamps 8 are adapted to swing up and over upon the blanks, so that their sled runner lower edges will engage the tops of the blanks by holding the blanks down. Some of defendant's machines apparently employ other devices for holding the blanks down, but they are all substantially the same in principle, being means of some kind for bearing against the tops of the blanks, but in no case do these clamping means or holding means travel with the blanks, but in each case the blanks slide under the holding means and have frictional engagement therewith. This photograph shows an alternate cleat set-up of the cleat pushers and sheet spacers, and shows such a set-up of cleats, there being only four cleats in position to receive the sheets thereon, the first section being cleatless, and the third section being cleatless, thereby to produce a four-cleated or so-called alternate cleat blank. The close resemblance between the feed runway and work guiding and feeding means of this photograph and those [fol. 442] of the prior art patents, such as the Roshaek patents referred to both here and in my former testimony, is quite apparent.

Also before me while preparing this affidavit I have another photograph looking down on defendant's same machine, showing exactly the same set-up of cleat pushers and sheet spacers, but showing the precleated sheets in place for the production of an eight-cleated blank. This photograph is marked "Defendant's Exhibit No. 5," and in this photograph there are the four cleats 5 of the other photograph for the blank to be made, and also the precleated sheets 9 which form the first and third sections of the blank. This shows that the precleating is done on identically the same machine, as I find from the exhibits and the testimony of the witness Roscoe Steele, and as I observed in actual practice.

(Here follows Defendant's Exhibit No. 5, side folio 442½)

Therefore, I agree with the witness Roscoe Steele where he says in his testimony (see X Qs. 1161 to 1165 and answers thereto) that plaintiffs' machine and method are different from the defendant's machine and method, and that the plaintiffs' method, when compared with defendant's method, does not amount to the same thing. Of course they are different, and they are fundamentally different, as previously explained. One difference, and a fundamental one, between plaintiffs' cleat spacer method and defendant's cleat pusher method is simply that a cleat spacer must necessarily function on both sides thereof, while a cleat pusher can only function on the front side thereof. Both the front side and the rear side of a cleat spacer must function by engaging cleats, but only the front side of a cleat pusher, such as defendant employs in all its methods, can function by engaging a cleat. If the rear side of a cleat pusher engages a cleat, by accident or otherwise, such engagement has no utility, and performs no service, and this is true of all of defendant's methods. It is necessarily true of the alternate cleat method, because the jumping ahead of the cleats a distance equal to their length, and more, sufficient to cause their front ends to engage the cleat pushers ahead, would result in no beneficial effect so far as the engagement of the front ends of the cleats with the rear sides of the cleat pushers is concerned, for by so doing the cleat pushers would not function usefully in any way whatever. To the contrary, in plaintiffs' cleat spacer method, where the cleats rest upon and ride upon a moving structure, such as the portable workholder of the patents in suit, or such as the "channel shaped chain" described by the witness Roscoe Steele (see answer to X Q. [fol. 443] 1164), it is essential, in accordance with the teachings of the patents in suit, that each cleat spacer must be prepared to function on its rear side, as well as on its front side, for otherwise defective blanks would be made as the result of misplacement or disarrangement of the cleats. Therefore, as previously stated, the theory of the witness Roscoe Steele, as described in his testimony, that the rear sides or rear halves of the spacer blocks in the patents in suit could be omitted, or cut away, without changing the intended and inherent mode of operation of the machine of the patents in suit, is in my judgment a wrong conclusion, for such reconstruction or mutilation

of the workholding means of the patents in suit would not only result in defective blanks, as the result of forward misplacement or disarrangement of the cleats, but would also deprive the portable workholder of its capacity for insertion at either end thereof in the stapling machines, as with the spacer blocks cut away on their rear sides the workholder could only be inserted one way, and could not be inserted at either end, which latter is a part of the teachings of the patents in suit. With the workholder constructed as shown in the patents in suit, it can be taken out and laid on a bench, and the person doing the work does not need to exercise very much care in loading the workholder, as the complete set-up for the blank, if shorter than the workholder, can be started at either end thereof, and one end of the blank can terminate at either end of the workholder, and the cleats when dropped in place must of necessity be in proper position, because engaged at both ends by the spacer blocks; but with the workholder reconstructed or mutilated in the manner suggested by the witness Roscoe Steele, such method of loading the portable workholder would not be possible, as the person doing the work would have to always choose the same end of the workholder for the end of a blank shorter than the workholder, and would have to be careful and always insert the same end of the workholder in the stapling machine. Moreover, even with such reconstruction of the machine of the patents in suit, which is nowhere disclosed in said patents, the method would still be the spacer method and not the pusher method, for the cleats would still ride in and upon the workholder, instead of being pushed along in stationary guides, and the assertion of the witness Roscoe Steele that (see answer to X Q. 1163) "We do not push any cleats, no, sir.", would still be true. In other words, the only result of cutting away the rear ends of the spacer blocks of the patents in suit would be a defective spacer system, for [fol. 444] if the cleats were misplaced or disarranged so that their rear ends did not engage the cleat spacers, there would be no automatic rectification of such disarrangement of the cleats and the cleats would be stapled to the sheets in misplaced or improper relative positions, producing defective blanks. As distinguished from this, in the defendant's cleat pusher system method, there is always the assurance that the cleats, before they receive their first sta-

ples, will be held back until engaged by their cleat pushers in the event that while traveling forward any of them get jumped ahead of their pushers, or get out of engagement at their rear ends with their respective cleat pushers. This, therefore, shows the fundamental difference between the cleat spacer method, on the one hand, as shown in the patents in suit, or even in the defective inferior form suggested by the witness Roscoe Steele, and the cleat pusher system involved in all of defendant's methods, on the other hand. For, as the witness Roscoe Steele says, "We do not push any cleats, no, sir.", and the defendant in all of its machines and methods does push the cleats. If, as the witness Roscoe Steele says, in the patents in suit and in the St. Jo Iron Works machine, which was built in accordance with these patents, except that it had guides, instead of being a guideless machine like that of the patents in suit, there is no back pull on the binding wires, then the spacer blocks of the patents in suit can never function as pushers to push the cleats, as there would be absolutely nothing which would in any way tend to pull or push the cleats endwise and backward against the spacer blocks, and the primary purpose of the spacer blocks, therefore, and their principal if not only purpose, is merely to space the cleats, as they have no cleat pushing function, at least not prior to the attachment of the wires to the cleats. Of course, in the patents in suit, after the wires are attached to the cleats, or to any particular cleats, any back pull on the wires will tend to pull the cleats backward, and will be opposed by the spacer blocks which engage the rear ends of any cleats that may be subject to such back pull, but prior to such attachment of the wires there is absolutely nothing in the patents in suit which would tend to create a rearward, endwise back pull on the cleats against their respective cleat spacers. When the portable workholder of the patent in suit is taken out and laid on a bench, for loading, it is obvious that during such loading operation, the cleat spacer blocks can certainly perform no function of pushing, and cannot function as cleat pushers to the slightest extent, for at such time there is no feeding move- [fol. 445] ment and at such time the cleat spacers are cleat spacers pure and simple, and nothing else. Thereafter they continue the function as merely spacers except as the cleats are subjected to some back pull of the binding wires,

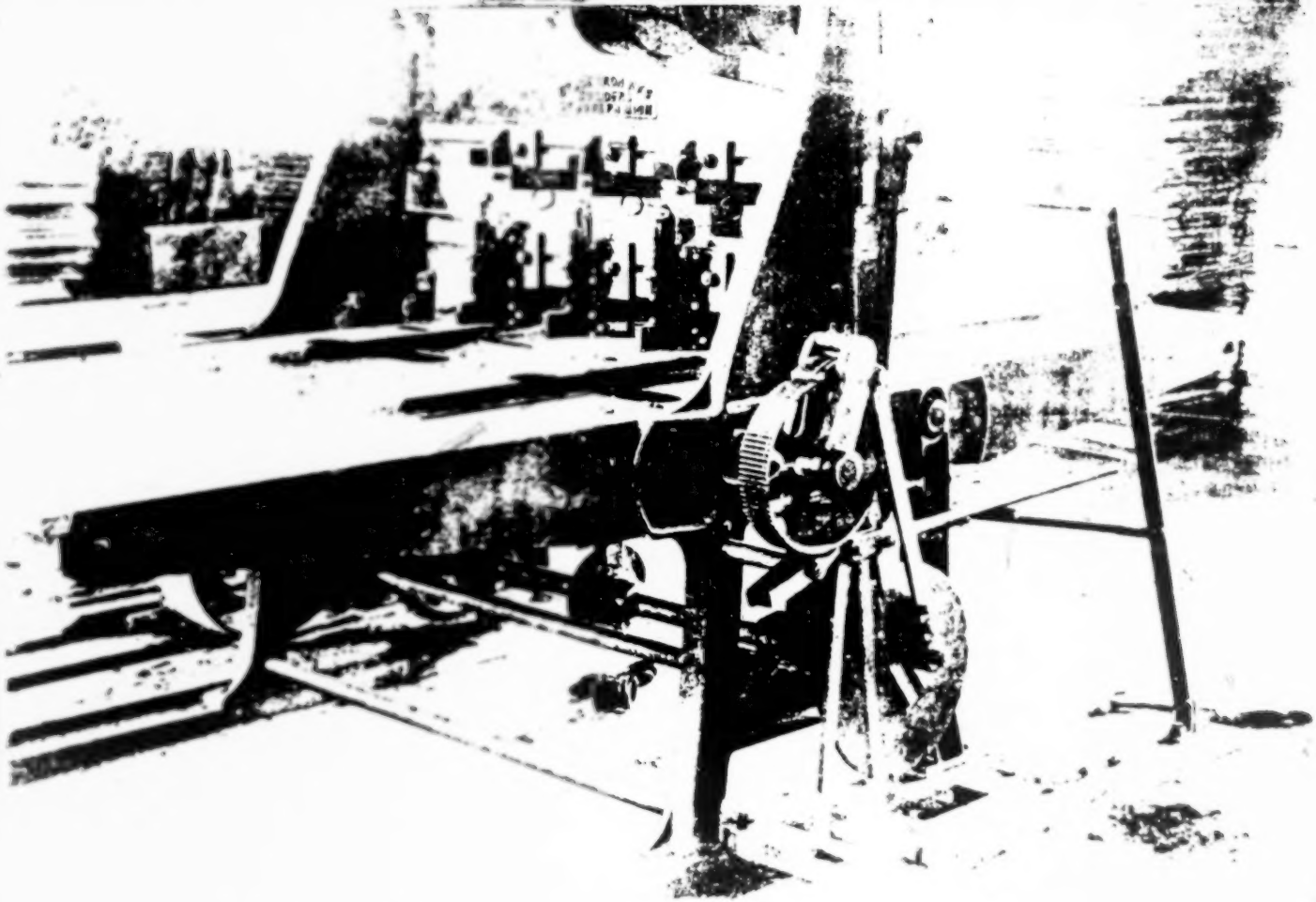
and even then they are not the cleat pushers of defendant's methods.

The machine of the patents in suit does not have the guides shown in Defendant's Exhibits 1 and 1-A. Without such guides it is seen that the machine would be absolutely impracticable and uncommercial, if not totally inoperative because of the difficulty of making the workholder go through the machine with nothing to hold it down against sidewise displacement. The witness Roscoe Steele, in his testimony, has given it as his opinion that no difficulty would be encountered, as there is no drag or back pull on the binding wires, except as the wires might be caught or tangled up; but this conclusion would seem to be in direct conflict with the very teachings of the patents in suit, as in patent No. 1,128,145 it is plainly stated, in claims 4, 8, 9, 10 and others, that the workholder is adapted to "prevent the drag or back pull of the metal binding from causing endwise displacement of the cleats thereon," and such drag or back pull would make it extremely difficult, if not impossible, to operate a guideless machine of the character disclosed in the patents in suit. But, of course, if this be answered by saying that in plaintiffs' machine there is no drag or back pull which would interfere with its operation, even when not equipped with guides, then it is certainly true that the spacer blocks of the patents in suit are never at any time called upon to have the function of pushers, and are never at any time called upon to resist endwise displacement of the cleats, and are never at any time called upon to communicate power to the rear ends of the cleats to propel them forward below the stapling mechanism. In all of defendant's machines and methods, the cleat pushers function immediately to push or propel the cleats in the stationary guides, even before any wires are attached to the cleats, for the cleats are placed in the stationary guides, and the sole and only means which can produce any forward movement of the cleats are the pushers which extend laterally from the endless feed chains, and which move forward and strike the rear ends of the cleats and then propel them forward against the retardation offered by frictional contact of the cleats with the guides and with other elements. In all the defendant's machines and methods, there are always simply as many cleat pushers as there are loose cleats to be pushed,

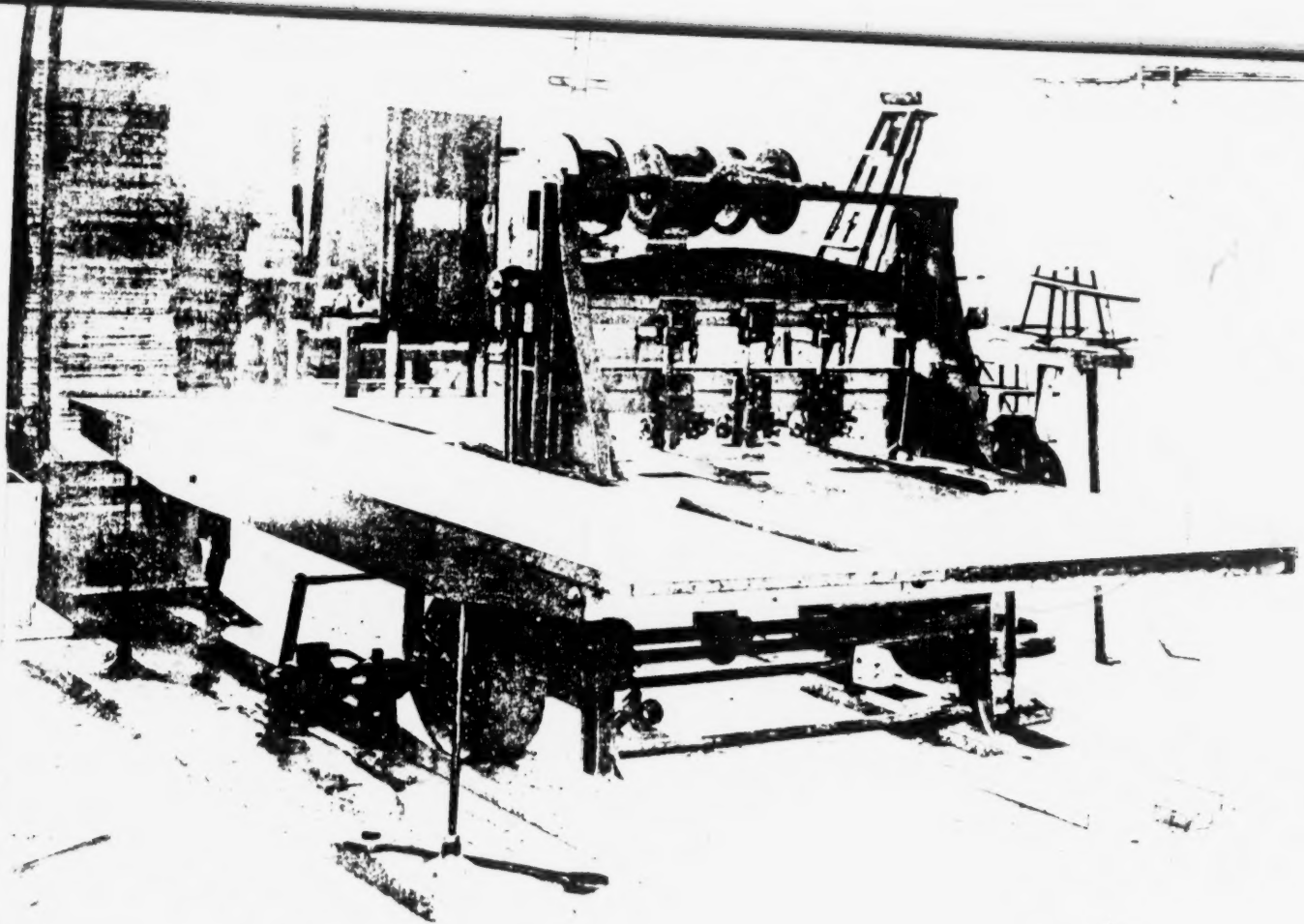
[fol. 446] and for previously attached cleats there are never any cleat pushers, as none are necessary. Of course, as in the Rosback patents, defendant's cleat pushers are disposed in predetermined relative positions, in order to insure having the cleats at one side exactly in line with or opposite the cleats at the other side, so that the ends of the cleats in one guide will be exactly abreast of or even with the ends of the cleats in the other guide, and in all of defendant's machines and methods, as in Rosback, frictional contact of the cleats with the guides and with other elements is depended upon to keep the cleats in this relative arrangement, with their rear ends pressed firmly against the cleat pushers. In defendant's machines and methods, as in Rosback, the cleats (those not previously attached to sheets), if they are jumped ahead or displaced, will stand still and wait for their respective cleat pushers to catch up with them, so to speak; whereas in the patents in suit no such automatic rectification of any displacement or disarrangement of the cleats can occur, first, because the spacer blocks of the patents in suit are shown as having both their front and rear sides in engagement with the ends of the cleats, so that the cleats cannot be displaced endwise; and, second, because even if the cleats were shorter than the spaces between the spacer blocks, there is absolutely nothing to stop the forward movement of a displaced cleat until the spacer block behind catches up with the rear end of the cleat, for in the patents in suit a forwardly displaced cleat will ride along upon the portable workholder upon which it rests and the disarrangement will never be rectified.

(Here follow Defendant's Exhibits Nos. 1 and 1a, side folio 446a and 446b, and Defendant's Exhibit No. 6, side folio 446c)

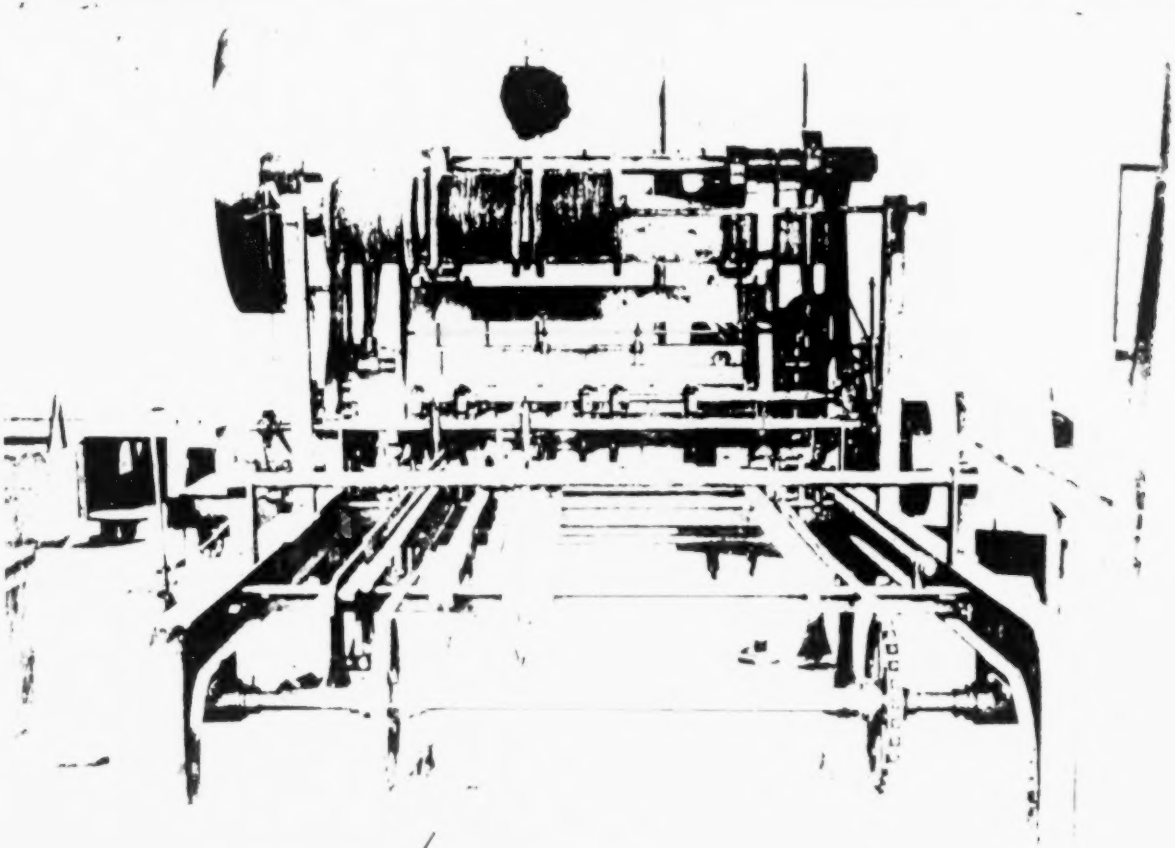
After careful comparison, the Defendant's Exhibits 1 and 1-A appear to be duplicates or exact copies of the two photographs found in the certified copy of the filewrapper and contents of patent No. 1,128,145, and either duplicates or exact copies of the Defendant's Exhibits 19 and 20 found on pages 878 and 880 of Defendant's Exhibit 6 in the Gibbons suit. Looking at these photographs, the two parallel guides are plainly shown on the top surface of the table of the machine, and in these photographs there is no evidence



Defendant's Exhibit No. 1—Photoprint of "South Bend" or "St. Joe" Machine.



Defendant's Exhibit No. 1a—Photoprint of "South Bend" or "St. Joe" Machine.



Defendant's Exhibit No. 6—Photograph Showing Rosback Machine.

of use of any long-toothed roller extending the full length of the machine, such as shown in the patents in suit. To the contrary, these photographs show two comparatively short transverse slots in the table, under each guide, and show what appear to be narrow pinions in these slots, close to said guides, presumably for the purpose of engaging the teeth shown on the racks on the bottoms of the workholders of [fol. 447] the patents in suit. The name-plate on the machine shown in these photographs says "St. Jo Iron Wks," and below that is the word "Builders," and below that are the words "St. Joseph, Mich." I also have before me a photograph marked "Defendant's Exhibit 6," which, upon careful comparison, appears to be a duplicate or a copy of the photograph marked "Defendant's Exhibit 18" on page 876, Volume 2 of "Defendant's Exhibit G" in the Gibbons suit, and these photographs appear to show the machine, or at least one very similar, shown in Rosback patent No. 625,958, as in these photographs there are shown the parallel cleat guides, parallel endless feed chains adjacent said guides, and in the lower portion of the photograph can be seen the transverse cleat pusher which is fastened to the endless chains or feed belts, and which is shown and described in the said Rosback patent. In the other Rosback patent No. 614,348, which more closely approximates the exact work guiding and feeding means of defendant's machines, the cleat pushers do not extend across from one chain or belt to the other, but are separate on each belt, and are for all practical purposes exactly the same as the cleat pushers of defendant's machine. Also, in this Rosback patent No. 614,348, the cleat pushers and upstanding portions which engage the rear edge of the veneer, and which in defendant's machine have the function, exactly as the sheet spacers do in Greenstreet and Lipps & Springer, of spacing the sheets apart at their edges. All of defendant's machines and methods are, therefore, fundamentally the same as these prior Rosback machines, using the cleat pusher system, and in these two patents and in this photograph marked "Defendant's Exhibit No. 4" there are seen the parallel cleat guides of defendant's machines, the parallel and endless link belts or feed chains of defendant's machines, the cleat pushers and sheet engaging means of

defendant's machines, and hence it is apparent that defendant has employed the teachings of the prior art, and has not followed the formula of the patents in suit, for such formula prescribes things which are not found in defendant's machines and methods. Following the teachings of Rosback, there will be as many cleat pushers, of course, as there are cleats to be pushed. If there are only two cleats to be pushed, as in Rosback, then there will be only two cleat pushers, as shown in Rosback No. 614,348; but if there are four loose cleats to be pushed for each blank, then it is obvious that duplicates of the pushers shown in Rosback will necessarily be employed, as the number of cleat pushers to be employed follows from the character of the blank to be [fol. 448] made, and the number of cleats on the blank dictates the number of cleat pushers to be used on the blank machine. If, on the other hand, an eight-cleated blank is to be made, as shown in the expired reissue patent No. 12,725, then it is obvious that eight cleat pushers must be employed, and while the record does not disclose that defendant has any machine having eight cleat pushers for each blank, it is obvious that the number of cleat pushers employed will always depend upon and be determined by the number of loose cleats to be pushed. Of course, for any previously attached cleats, where precleating is employed, no cleat pushers are necessary, and none are employed. When precleating is employed, as testified to by the witness Roscoe Steele, and as observed by me in actual practice, the cleat pushers on the machine have absolutely nothing to do with the previously attached cleats. Cutting away the rear sides of defendant's cleat pushers to make room for the front ends of any previously attached cleats, when precleating is employed, has no meaning or significance so far as any added function of the cleat pusher is concerned, for even so the cleat pusher does not act as a spacer in any sense of the word, as the previously attached cleat behind cannot get out of control, so to speak, and cannot jump ahead against the cleat pusher. In said reissue patent No. 12,725 the cleats are obviously preformed, being cut to the proper length and shape before being attached to the sheets, and the patent plainly calls for this method in various ways, as when it explains what the difficulty was with the blanks which were made by step-mitering the cleats

after they were fastened to the sheet material. Therefore, as stated, there will be as many cleat pushers on any machine as there are loose cleats to be pushed, and to practice the method prescribed in said reissue patent, on defendant's machine, would obviously call for eight cleat pushers for each blank, just as the making of an eight-cleated blank on the Rosback machine (patent No. 614,348) would call for the multiplication or duplication of Rosback's cleat pushers F' on the link belts F, and the varying of the number of cleat pushers does not change the essential characteristics of the pusher system method, and is a matter that automatically takes care of itself in an obvious manner in accordance with the number of loose cleats to be pushed or propelled for each blank.

Therefore, in my judgment, there is practically no difference between this suit and the Gibbons suit, except that in some cases the defendant's licensees are producing a different [fol. 449] form of preliminary blank, instead of the four-cleated blanks made by the defendant in the Gibbons suit. However, the eight-cleated blanks complained of in this suit are made on the same machines as are the four-cleated blanks, and by practically the same method. In making the four-cleated blanks four cleats pass through the cleating machine to fasten the cleats to the heads or end walls, and in the making of eight-cleated blanks by defendant's method four cleats pass through the cleating machine. Therefore, the said cleating machine, for precleating the heads or end walls in one case, or for precleating two sections of the blank in the other case, is essential and necessary in each method. The only difference is that in the alternate cleat method only four cleats pass through the blank-making machine for each blank, while in the making of eight-cleated blanks eight cleats pass through the said blank-making machine for each blank. Therefore, while the preliminary blank produced by the so-called precleating method is different from the preliminary blank produced by the alternate cleat method, it appears that the machinery for each method is practically the same, that the method employed is practically the same, being in each case the cleat pusher system method of Rosback and others, and in each case the final product (the ultimate box) is substantially the same.

The intermediate product (the preliminary blank) is different in the so-called precleating method from what it is in the so-called alternate cleat method, but eight cleated blanks are found in the expired reissue patent No. 12,725, and in Rosback and other patents, and it would seem to be obvious that defendant's pusher system method may be practiced in different ways, or with slight changes, in order to produce preliminary blanks of different kinds, without diverging from the fundamental principle involved, which is the pushing of cleats in stationary guides, so that each cleat pusher can only function on its front side, so that the rear side of each cleat pusher cannot possibly have any utility or function. Plaintiff-' Exhibits No. 21 and No. 22 in some cases show eight cleated blanks, but nowhere do they describe or even suggest any method for making eight cleated blanks; certainly, these advertisements do not show or describe the so called precleating method, and just what method was contemplated in these advertisements, if any, for the making of the eight cleated blanks, as shown in Exhibit 22, is not clear, and is not stated or disclosed.

In each of defendant's machings, therefore, and in each of defendant's methods, there is nothing having the function [fol. 450] tion of a cleat spacer block. To function as a spacer block, the element interposed between the adjacent ends of cleats must be supported on a structure upon which the cleats are riding or resting. As distinguished from this, defendant's cleat pushers, even if interposed between the ends of adjacent loose cleats (which is nowhere shown to have been done), could not function as spacers because these pushers and cleats travel forwardly, of course, but the support upon which the cleats are resting is stationary, and hence the rear sides of defendant's cleat pushers are nowhere shown to have any function or purpose, and could have no function or purpose. The rear sides of defendant's cleat pushers certainly have no purpose or function in the so-called precleating method, as the cleats immediately in rear of the pushers are held by their sheets against forward displacement. Even if blanks were made by using eight loose cleats, without any precleating, on defendant's machines, by supplying four more cleat pushers for each blank, the fundamental distinction between the spacer method and the pusher method would still hold true, as even under such

conditions the rear side of each cleat pusher would have no utility or purpose, as in such case the friction of the cleats in the guides and against the other retarding means supplied for that purpose would hold their rear ends in firm engagement with the front sides of the cleat pushers, and any engagement of the rear sides of the cleat pushers with the front ends of such cleats would be without effect or purpose, and wholly unnecessary. To the contrary, in the patents in suit, in which the cleat spacer system method is employed, the spacer blocks are made to fit between the ends of adjacent cleats, and the rear side of each block has the necessary function of engaging the front ends of the cleats, or being capable of so doing, in order to prevent forward displacement of the cleats, which would result in defective blanks. In other words, in the patents in suit, if the spacer blocks do not intervene and function to prevent forward displacement of the cleats during the setting up of the blank in the workholder, or during the jerky intermittent forward feeding movement of the workholder in the stapling machine, there is then nothing else that can perform that function. But in all of defendant's machines, and in all of defendant's methods, there is no dependence whatever placed upon the rear sides of the cleat pushers to prevent forward disengagement of any cleats, and in all of defendant's methods as actually practiced there is practically no possibility of any engagement of the rear sides of the cleat [fol. 451] pushers with the front ends of any cleats which could be displaced forwardly enough to bring their front ends into engagement with the rear sides of the cleat pushers. Even in the precleating method, if the previously attached cleats have their front ends in engagement with the rear sides of the cleat pushers, there is absolutely no utility or purpose in so doing, inasmuch as these cleats are fastened to the sheets and cannot be forwardly displaced, and hence in such method it cannot be said that the cleat pushers are acting as cleat spacers in any sense whatever, and it cannot be said that in any of defendant's machines or methods the rear sides of the cleat pushers are ever called upon or in any way adapted to function for any useful purpose whatever.

In the patent in suit No. 1,128,145 there is nothing shown for holding the work down in the workholder and absolutely nothing shown for positioning the sheets on the cleats, and

nothing shown for preventing edgewise displacement of the sheets in any direction. This patent refers several times to the drag or back pull of the binding wires, and in claim 4, for example, it is stated that—

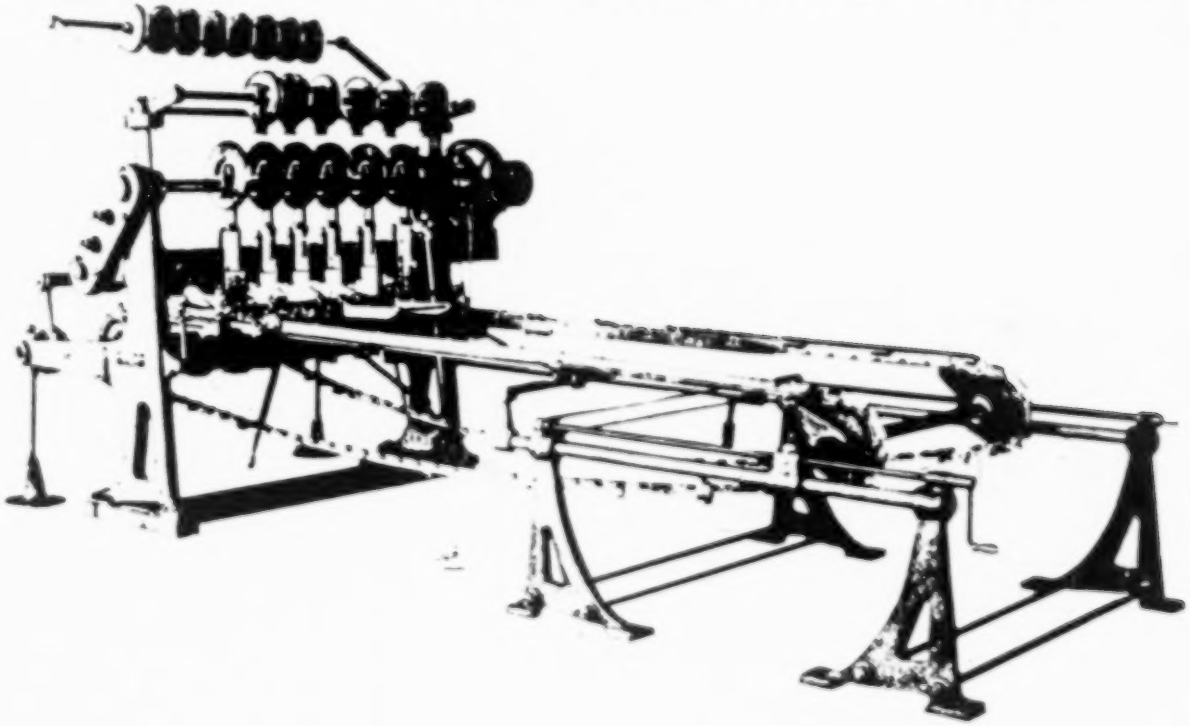
"the side portions of each workholder being provided with means for holding the said cleats end to end, in parallel and fixed relation thereto, and for preventing the binding from causing endwise displacement of the cleats thereon."

Therefore, if the patent is correct in this respect, it means that there is some drag or back pull of the binding wires which would tend to make trouble if no guides were provided for the workholder and if nothing is provided to hold the work down in the workholder. In any event, though, if there be some drag or back pull to which the cleats are subject in this patent, such drag or back pull is not communicated to the spacer blocks until after the first staples are driven in the front ends of the cleats, as prior to that the spacer blocks have no capacity to act as pushers. In all of defendant's machines and methods the cleat pushers function as such as soon as they engage the rear ends of the cleats, and function as pushers before any staples are driven in the cleats, just like the cleat pushers of the Rosback patents. Therefore, in all of defendant's machines and methods, the rear side of each cleat pusher has no utility or purpose or function whatever, and only the front side of each pusher has any function or utility; whereas, in all of the patents in suit, both the front and rear sides of the cleat spacers necessarily have utility. In the patents in suit the spacer blocks inserted between the [fol. 452] ends of cleats could be loose in the workholder, and under such conditions they would still function to space the cleats apart; but in all of defendant's machines and methods the cleat pushers must be fixed on the endless link belts or feed chains, for otherwise defendant's cleat pushers could not function and could not push the cleats forward. Defendant's machines and methods, therefore, are entirely different in principle from the patents in suit, and, instead, employ the fundamental principles of the old Rosback and Greenstreet and Lipps and Springer and other patents.

Also, while testifying, I have before me a photograph showing one of defendant's machines, which corresponds to those testified to by Roscoe Steele and those inspected by

170 P

DEFENDANT'S EXHIBIT NO.7



Defendant's Exhibit No. 7—Photograph of Defendant's Machine.

me, and which is marked "Defendant's Exhibit No. 7." This photograph, which shows the machine in perspective, shows the similarity between defendant's machines and the machines of the Rosback and other patents. Plaintiff's Exhibit Drawings, introduced in evidence in the Roscoe Steele depositions, are fragmentary and rather misleading, for defendant's machines do not have the portable workholder of the patents in suit, of course, or anything approximating such a workholder. To the contrary, as shown in this photograph, and as shown in defendant's patents Nos. 1,258,989 and 1,384,239, defendant's machines have the long, parallel, stationary guides for the cleats, forming a runway for the work, so to speak, and have the long, endless link belts or feed chains disposed between said guides, with the cleat pushers and sheet spacers fixed on said chains, like the Rosback and other patents. This photograph, and the other photographs looking down on the runway of defendant's machine, show the parallel, stationary guides, long, endless link belts or feed chains, and the cleat pushers and sheet spacers which are characteristic of each and every one of defendant's machines as described in the testimony of the witness Roscoe Steele and as observed by me at the Maxwell and Gibbons factories here in Chicago.

John Howard McElroy.

Subscribed and sworn to before me this 9th day of July, 1925. Julia M. Bristol, Notary Public (Seal.)

(Here follows Defendant's Exhibit No. 7, side folio 452½.)

[fol. 453] And thereupon Mr. Janney, on behalf of plaintiffs, proceeded with the cross-examination of defendant's expert, Mr. McElroy.

Cross-examination.

By Mr. Janney:

Since testifying in the suit of these plaintiffs against H. R. Gibbons Box Company, I have not seen any Rosback box that I know of, that is, a box such as those disclosed in the Rosback patent, made from scored and bent veneer.

I have never examined one of these Rosback boxes. I have never witnessed any sort of test of one of the Rosback boxes.

X Q. 4. Have you ever seen any machine built in accordance with any of the Rosback prior art patents which you have referred to in your direct testimony in the present suit, or in any of your testimony in the H. R. Gibbons Box Co. suit?

A. Only so far as defendant's machines herein complained of embody the teachings of those patents.

I have never seen any machine for making the rigid Rosback blanks formed from two long strips of cleat material and continuous side sheet. I have never seen a machine made in accordance with the Greenstreet patents that I referred to in my testimony in this or the Gibbons suit. I have never seen a machine made in accordance with the Lipps & Springer patent I have referred to in my testimony in this and the Gibbons suit. I have never seen a machine made in accordance with either of the Fuller patents referred to in my testimony in this and the Gibbons suit. So far as I know, I have never seen any box machine exactly like any of those disclosed in any of the prior art patents which I referred to in my testimony in this and the Gibbons suit. I have no personal knowledge of any of the practical deficiencies of those prior art machines which may have been cured or avoided by the contributions of Inwood and Lavenberg disclosed in the patents in suit.

X Q. 11. Have you taken the trouble to investigate any of the history of the attempts to use the prior art machines in order to test, by reference to actual experience, the conclusions which you have stated in your testimony in this and the Gibbons suit?

A. As I have never seen any of the specific prior art machines, of course I could make no test of them. My knowledge of the history of the prior art is purely hearsay, gathered from the records of the previous litigation, [fol. 454] as well as some information derived from a Mr. Fowler who was in the game some years ago.

X Q. 12. Are you aware of the fact that machines made in accordance with the Knudtson & Uhri, and Rosback patents referred to in your testimony were the subjects of persistent but wholly unsuccessful experimentation for a

period of about thirteen years just preceding the inventions by Inwood & Lavenberg of the patents in suit?

A. I have no direct knowledge of the matter.

I have no personal knowledge of the subject that the prior art machines by which for about thirteen years it had been attempted to make the butt veneer type of box, were wholly abandoned and discarded promptly upon the making of the Inwood and Lavenberg inventions of the patents in suit, but understand that it is true.

X Q. 14. Are you aware of the fact that throughout about thirteen years of unsuccessful experiment with the Knudtson & Ulri, Ulri, and Rosback machines there was never a single instance, so far as any one can now learn, of the positioning of two individual cleats in line, and holding them in proper spaced relation to be wired together and then folded to constitute parts of the same box?

A. I have no personal knowledge on the subject.

X Q. 15. Where in the prior art do you find any disclosure of any sort of mechanical contrivance for locating two individual cleats in line and spaced apart in proper relationship to be wired together and then folded so as to constitute parts of the same box?

A. As I recall it, the line of patents that are generally known as the Rosback patents were the only ones designed to produce substantially the same box as that in controversy, and there the cleats were sawed out from a single strip after they had been wired on to the sides so that while the cleats would occupy the necessary spaced relation, they were not at the time of wiring separate cleats.

I do not find in the prior art any disclosure of any sort of mechanical contrivance for locating two individual cleats in line and spaced apart in proper relationship to be wired together and then folded so as to constitute parts of the same box, understanding that by "mechanical contrivance" is meant what would ordinarily be called a machine. The two machine patents in suit disclose mechanical contrivances for locating two individual cleats in line and spaced apart in proper relationship to be wired together and then [fol. 455] folded so as to constitute parts of the same box.

X Q. 18. Do defendant's machines, as you have observed them, as explained in your direct testimony in this suit, have mechanical contrivances for locating two individual cleats in line and spaced part in proper relationship to

be wired together and then folded so as to constitute parts of the same box?

A. I should say so. That, of course, is speaking broadly, and without reference to any definition of the invention by the claims of the patents in controversy.

In defendant's machines the mechanical contrivances for locating two individual cleats in line and spaced apart in proper relationship to be wired together and then folded so as to constitute parts of the same box, are the stationary guide, and the chains with the cleat pushers. Part of the work of the stationary guides is to insure the positioning of each cleat with its rear end against its pusher. It is correct that that is the principal function of the stationary guides, insofar as it relates to the endwise positioning of the cleats. Of course the primary function of the guides is to support the cleats rather than position them. The thing that ultimately defines the position of a cleat on defendant's machine, in relation to another cleat in the same line, is the pusher which contacts with the rear end of the cleat.

X Q. 23. Where, if at all, in the prior art do you find any machine having two devices arranged to contact respectively with the rear end of two cleats for locating two individual cleats in line in proper relationship to be wired together and then folded so as to constitute parts of the same box?

A. As I recall it, there is no machine arranged to do this, with all the limitations expressed in your question.

X Q. 24. What is the machine in the prior art which represents the nearest approach you have been able to find to the arrangement just described in my X Q. 23?

A. That would depend a little on the angle from which the question was approached. So far as the use of the plurality of cleats at the same time on the same machine is concerned, I would say that the structure of the Fuller patent 694,467 is the most pertinent, but of course Fuller did not wire his basket tops together. However, considering the fact that any mechanic would naturally use as many cleat pushers as might be necessary to push the required number of cleats for a blank, it seems to me that the Rosback patent 614,348 is really the more pertinent.

In the Fuller patent 649,467 there is no suggestion what- [fol. 456] ever of locating any two parts in a foldable re-

lationship and then wiring them together in that relationship. That is one of the reasons why I consider the Fuller patent less pertinent than the Rosback patent. It is my recollection that none of the Rosback patents makes any suggestion whatever of locating any two individual parts in a foldable relation and then wiring them together in that relation. Throughout the Rosback series, as I recall it, the idea was to do the wiring first and then saw out the individual cleats from strips the length of the blank. As I recall it, the wiring mechanism of the Rosback blank machines could have dealt with preformed individual cleats, but Rosback did not contemplate that method.

X Q. 29. Can you point to any disclosure in any of the Rosback line of patents, or in any other prior art patents, indicating knowledge in the prior art that two preformed individual cleats could be mechanically positioned in line in foldable relationship and then wired together to perpetuate that foldable relationship and permit the cleats to be folded so as to constitute parts of the same box?

A. I think I have previously said that there was no machine that I recall that was specifically designed to do what is set out in your question.

X Q. 30. I wish you would reread my next preceding question 29 and see whether you wish to elaborate your answer.

A. I made the answer in the way that I did for the reason that I had in mind the possible existence of prior art box patents which would naturally be made by mechanism such as was described by your question, and I wish to exclude the possibility of such knowledge. In other words, given the Inwood and Lavenberg box blank to be made, I think almost anybody would design some sort of contrivance to hold the cleats in place while the sides were wired to them by hand stapling. However, while knowledge of such a machine might exist, I do not recall that there is any disclosure of them in the prior art patents.

X Q. 31. You realize, of course, do you not, that the Inwood and Lavenberg box blank was not at all in the prior art with reference to the patents here in suit?

A. That, of course, would depend on how you use the words "prior art." I take it that Inwood and Lavenberg invented the box blank before they invented the machinery for making it.

X Q. 32. Can you point to any evidence that the Inwood and Lavenberg box blank was a part of the prior art with reference to the patents now in suit?

[fol. 457] A. If you mean that the Inwood and Lavenberg box blank was available as a reference against the Inwood and Lavenberg method and machine applications, as I recall the situation, it was not. Whether or not the court can take into consideration the expiration of the monopoly of the blank patent with regard to their alleged rights under the other patents is something I will have to leave to the court.

X Q. 33. Please point out the very best example you have been able to find in the prior art indicating any knowledge that two preformed individual cleats could be mechanically positioned in line in foldable relationship and when wired together to perpetuate that foldable relationship and permit the cleats to be folded so as to constitute parts of the same box.

A. I would say that the Healy patent No. 768,123 is probably as enlightening as any other, remembering that it was known in the art from the Rosback patent to use wire to bind blanks together by stapling over the wires, through the sides, and into the cleats. This Healy patent shows the same kind of a structure, only he uses metal strips secured "by nails, rivets, prongs, or screws" instead of the binding wires. I would understand from this patent that the cleats 12 are preformed separately and it would seem to be the most natural thing in the world to line these cleats up in a holder, place the sides over them, and then nail down the binding strips 7 and I am of the opinion that any carpenter being presented with the job of manufacturing these Healy boxes in quantity, would, as a matter of course, make up a holder for the cleats. Obviously such a holder made to make the Healy box, could be used to make the Inwood and Lavenberg box with the wires substituted for the metal strips shown by Healy. Does that answer the question?

X Q. 35. This Healy patent 768,123, then, is the best support you find in the prior art for the theory you just stated?

A. I think it is as good as any.

The Healy patent does not disclose any mechanical contrivance at all to be used as a workholder. As I recall it,

all of the mechanical means in the prior art would have to have some modifications to serve the purpose of assembling the parts of the Healy box in position to be secured together to receive the straps.

X Q. 38. In discussing the workholder patent in suit in your direct testimony and in explaining your view as to the importance in that workholder of having a spacer block located at the advance end of the cleat as well as at the rear [fol. 458] end, you seem to have ignored entirely the spring 15 illustrated in Figures 1 and 7 of the workholder patent in suit No. 1,128,144. Why did you ignore that spring 15?

A. Because it has nothing to do with the correct location of the cleat lengthwise. It merely holds it in its correct lateral position.

X Q. 39. As the spring 15 is disclosed in the mechanical patents in suit would it bear against the side of the cleat strongly enough to prevent endwise displacement of the cleat which was inserted into the machine with its rear end against a spacer block? When I say "prevent endwise displacement" I mean displacement due to the ordinary influences of vibration in the operation of the machine.

A. According to the teachings of the Inwood and Lavenberg patent there is no need of the spring 15 to prevent endwise displacement, because that is taken care of by the fact that both ends of the cleats contact with the spacer blocks 7, so that no endwise displacement is possible. If this were not so, the efficiency of the spring 15 would depend entirely upon the material of which it is constructed, its dimensions and the forces that might be brought in play tending to displace the cleats A longitudinally.

X Q. 40. I call your attention to the specification of the workholder patent in suit No. 1,128,144, page 3, beginning with line 34, as follows:

"In order to hold the cleats firmly in the channel and against the outer flange of the cleat bar, so that the cleats will register with the edges of the sheets, and to prevent wobbling of the cleats and possible displacement we provide plate springs 15, which are secured at one end to the inner flange of the bar or otherwise, and their free ends having engagement with said bar, the springs normally being distended or bulged in toward the center of the bar,

as shown in dotted lines Fig. 7. The spring being depressed as a cleat is inserted as indicated by full lines, *thus firmly binding the cleat in position on the bar.*"

Does this description, with particular reference to the last clause which I have italicized, suffice to show a skilled mechanic how the spring could serve to hold a cleat against endwise displacement in the ordinary operation of the machine, if the rear end of the cleat were positioned against a spacer block, and if no spacer block were present at the advance end of the cleat?

[fol. 4594] A. The modification which you have suggested is not in accordance with the teachings of this patent, but if it were made, and the spring were strong enough, it would presumably hold the cleats in place during their passing through the machine after the workholder had been positioned on the table of the machine shown in patent No. 1,128,145. It would not necessarily, however, hold the cleats against displacement while it was being transferred from the table where the material is assembled in the workholder of the table of the machine doing the stapling. In view of the statement found in the first four lines quoted, to wit:

"In order to hold the cleats firmly in the channel and against the outer flange of the cleat bar, so that the cleats will register with the edges of the sheets."

I am still of the opinion that my original statement was correct, and the "edges of the sheets" referred to in the portion just quoted are undoubtedly what would ordinarily be called "the ends of the sheets."

X Q. 41. In the bent veneer type of blank made on the Rosback machine including the step mitering machine, when the individual cleats had been finally sawed out of the long cleat strips of the rigid blank how did the spaced relationships of those individual cleats compare with the spaced relationships of the cleats of the finished blank made on the workholder of the workholder patent in suit?

A. In a general way it was the same.

X Q. 42. Then it was part of the problem involved in the practice of the Rosback blank-making method and in the use of the Rosback machines to produce eventually the same general spaced relationship of individual cleats pro-

duced by the Inwood and Lavenberg method and work-holder of the patents in suit? Is that correct?

A. It seems to be.

X Q. 43. And as I understand your theory, it is that prior to October, 1904, it would have been obvious to any skilled box mechanic that he could produce that same relationship of individual cleats simply by preforming cleats, duplicating the cleat pushers on the Rosback blank machine and assembling the individual cleats with those pushers on the blank machine. Is that a correct statement of your theory; if not please explain?

A. It seems that that could be done. He might have to exercise some caution about adapting the form of his cleat pusher to the particular type of cleat that he expected to employ.

[fol. 460] X Q. 44. You have not answered my question. Please say whether or not it is your theory that any skilled box mechanic would have found it obvious prior to October, 1904, to follow the procedure described in X Q. 43.

A. If told to do it I think he could have, so that the answer is substantially affirmative.

X Q. 45. Of course that does not answer my question. If a skilled box mechanic required to be told what to do, that does not mean that it would have been obvious to him that he could successfully produce the described cleat relationship by simply preforming the cleats and duplicating the cleat pushers on the old Rosback machine. I wish you would reconsider my question and answer again.

A. I was trying to be painfully accurate in my statement. My experience with mechanics has been that they are not apt to do new things or do things differently unless they are told what is required of them. My thought was that if a competent mechanic, skilled in box making and familiar with the Rosback machine as shown in patent No. 614,348, was told to adapt the machine to handle preformed cleats that he would use as many cleat pushers as would be necessary and would shape them so as to co-operate with the ends of the cleats they had to push and at the same time not interfere with the immediately following cleats.

X Q. 46. Having experienced much difficulty in producing the described cleat relationship by the rigid blank and sawing method, which we have been calling the Rosback

method, would it have been obvious to the skilled box mechanic prior to October, 1904, according to your theory, that he could "adapt the machine to handle preformed cleats" instead of the long strips of cleat material habitually employed on the Rosback blank machine?

A. It seems so to me, but of course I have no absolute knowledge as to what a skilled box maker and mechanic of 1904 would have known or been able to do.

X Q. 47. Which is the simpler and more economical method—the Rosback method involving production of rigid blanks on the blank machine and the subsequent sawing operation to produce the individual cleats on the slop miter ing machine, or the method involving the preforming of the cleats and the assembling thereof in spaced relationship as described, for instance, in the blank machine patent in suit, or the workholder patent in suit?

A. I think it would require some considerable calculation to determine that precisely, if we ignore the material that [fol. 461] may be used in making the boxes, but if we consider the material that can be used in the two methods, I should say without hesitation that the method in controversy is more economical than the Rosback method.

X Q. 48. To what extent would those circumstances have been obvious to one skilled in the box making art prior to October, 1904?

A. I should say that the greater economy in the materials that could be used in the later method would have been obvious at that date.

X Q. 49. Then as I understand you your theory runs somewhat as follows: First, to those skilled in the art prior to October, 1904, the desirability of using preformed cleats instead of long strips of cleat material, and the economies possible in the use of the preformed cleats, would have been obvious. Am I right so far?

A. It seems so to me.

X Q. 50. And second, that to those skilled in the art prior to October, 1904, it would have been obvious that preformed cleats could be used in lieu of the long strips of cleat material to produce ultimately the same spaced relationship of individual cleats which were produced by the prior art Rosback method. Am I correct in this statement of the second step of your theory?

A. As I understand your question, you are.

X Q. 51. And third, the first and second sets of circumstances being obvious, those skilled in the art prior to October, 1904, would have found it further obvious that they could perform a simpler and more economical method by simply duplicating cleat pushers on the old Rosback machine and appropriately positioning them in relation to each other so as to provide for positioning the preformed cleats in proper foldable relationship to be wired together. Am I correct in the statement of this third step of your theory?

A. I am not prepared to say that the mere duplicating of the cleat pushers would be all that would be required. The disclosure of the Rosback patents as to the precise shape of these cleat pushers is not such that I can say that merely duplicating them would be sufficient. I think, however, that a skilled mechanic who did undertake to duplicate them to utilize the machine with preformed cleats would naturally alter the shape of the pushers so that they could co-operate with the particular cleats and secure the arrangement of them which was desired.

X Q. 52. Of course you have refrained from answering my question. In X Q. 51 I asked you whether I had correctly stated a third step of your theory, that certain pro-[fol. 402] cedure would have been obvious to those skilled in the art prior to October, 1904. Please answer that question.

A. Not exactly. I endeavored to explain my exact belief in my answer to X Q. 51.

X. Q. 53. But your answer to X Q. 51 does not say whether the procedure would have been obvious or not, and that is the essence of my question.

A. With the explanation of my answer to X Q. 51 I would say that it is obvious.

X Q. 54. Now in my questions 49 to 53, inclusive, I have tried to bring out just what is your theory upon the alleged effect of the prior art Rosback machine and what you have called in your direct testimony "the old Rosback pusher method," in relation to the patents here in suit and the defendant's alleged infringing machine. For a more concise statement of your theory I submit this—that one skilled

in the art prior to October, 1904, would have found it an obvious expedient to modify the Rosback method and modify the Rosback blank machine to handle preformed cleats and to produce exactly the machines employed by defendant today so far as concerns the work pushing and positioning apparatus and their relationship to the stapling apparatus. Is that a correct statement of your view?

A. It seems to me about that. There are what has been called the "clincher blocks" in defendant's machine which are necessary where it is used for making alternate cleated blanks, that seemingly would not have been an obvious thing to employ.

X Q. 55. Then if all these things would have been obvious to those skilled in the art prior to October, 1904, how would you, as a mechanical expert, account for the fact that for a period of thirteen years the Rosback line of inventors and their business associates persisted in their attempts to perfect the old Rosback method, instead of adopting what you have said were obvious expedients for the purpose of practicing what you have said was a simpler and more economical method and which proved to be immediately successful as soon as Inwood and Lavenberg had begun the use of the new method?

A. I cannot agree with the assumption of your question that the obvious "simpler and more economical method" is that devised by Inwood and Lavenberg. I note, however, that your question does not now refer to the method devised by Inwood and Lavenberg, but to one "used" by them. I think it is of record that the specific method and mechanism shown in the Inwood and Lavenberg patents in controversy were dropped for a method and structure that more nearly [fol. 463] resembles that defined in your question.

Coming to the precise answer to the question, if I had to account for it I would say that the owners of the Rosback patents felt that they had ample protection for that type of machine, and accordingly wanted to make it successful commercially if it were humanly possible.

X Q. 56. Is that the best reason that you can see why the Rosback line of inventors and their associates experimented for thirteen years unsuccessfully with the old Rosback method, when, as you say, it would have been obvious

for them to have devised the method of using the preformed box parts and the modifications of the Rosback machine for handling those parts, as you say defendant's machines embody in practice those modifications?

A. Assuming that the facts stated in the question are correct, I think it is. The Rosback people, it always seemed to me, started out with the wrong idea, but inasmuch as it was so broadly new, they were bound to make a success of it if they could.

X Q. 57. Then your theory is that the Rosback people consumed thirteen years in the pursuit or an unsuccessful plan when it was obvious that they could have adopted a simpler, more economical and successful plan; and that they did this simply because they had a broadly new idea which they felt constrained to follow through for thirteen years. Is that correct?

A. I am not contending that the Rosback people thought of the method employed by defendant, although it seems that they should have. It is a fact, as I have observed, that if an inventor starts out to do a thing a certain way, and that certain way is broadly new, it is almost impossible to get him to drop it, and the result frequently is that he spends years in perfecting an invention only to find that somebody else, when the idea becomes commercially valuable, steps in and gets all the business by using a simpler and better method or machine which a new man could see at once, whereas the original inventor handicapped by his devotion to his own idea could never see it.

X Q. 58. It appears in this record that in about 1891, Col. Henry Stephens, a business man and one Howenstine, an inventor (patentee of one of the patents of record in the Gibbons suit and referred to by this witness in that suit and also in the present suit), began the attempt to make the Rosback type of box, and they employed a machine designed by Howenstine. They were unsuccessful, and inventors named Knudtson and Uhri were employed [fol. 464] in an attempt to devise new machines which would turn the previous failure into success. The record shows that they devised the Knudtson and Uhri machines of patents cited by the defendant in this suit. Those machines were used in attempts to produce the Rosback type of box, but were unsuccessful. In the meantime other busi-

ness men had become interested with Col. Stephens and succeeding him when he eventually dropped out. Mr. William P. Healy, who was both a business man and an inventor, entered the business. The inventor Rosback was employed to design still further machines for making the Rosback type of box. His machine and method were unsuccessful. A further inventor, Flora, was employed in an attempt to correct the deficiencies of the Rosback machine, of which there were several different designs. Flora's machine was equally unsuccessful. In the meantime, again, other business men had engaged in the effort to establish a business in the making of wirebound boxes. The record shows that the combined skill and experience of all these individuals and their efforts aggregating about thirteen years did not suffice to establish any going business and that the failure was mainly, if not entirely attributable to the failure of the machines and methods. If it would have been obvious at any time during that period of thirteen years for any of these inventors or their associates to devise the method and machinery now used by defendant, broadly speaking, you could hardly account for their faliure to do so by the theory of any inventory's persistent adherence to his own notions, could you?

A. If the facts are as set out in the question, it would seem that the persistence in following a wrong idea must have been due to the business men and not to any one inventor.

X Q. 59. Then it is your theory that the business men preferred to follow the wrong idea and to lose money on it for thirteen years rather than to adopt the sort of method that was immediately successful as soon as they began to use it. Is that correct?

A. Well, I have no means of knowing that the business men ever had any other possible method brought to their attention.

X Q. 60. If the other possible method, of the kind now employed by defendant, had been obvious during the thirteen years of futile experimenting, is it reasonably probable in your opinion that it would have been wholly overlooked (as the record shows it was overlooked) by all of the inventors and their associates who were trying to build

[fol. 465] a business upon the basis of the Rosback and similar machines?

A. I take it that the various statements of alleged facts relative to the failure of the Rosback machines and so-called method are based on the rebuttal testimony in the Gibbons suit, and I have not read that rebuttal testimony, so that I hardly feel qualified to discuss intelligently just what that experimentation showed. I think it might be of some interest to know how soon after Mr. Healy got into it that the preforming of the cleats was taken up.

X Q. 61. The record shows that Mr. Healy became active in the business and thereafter substantially controlled and directed all of its policies, beginning in 1896 or 1897. He continued to direct the business up to and after the time the Inwood & Lavenberg inventions were made in 1904. If these record facts assist you in formulating a theory as to why a practical method was not sooner adopted by Mr. Healy and his associates, please proceed with your answer.

A. The date of Mr. Healy's entry into the business does not seem to account for their continuing on the Rosback method.

X Q. 62. Mr. McElroy, you have said that the adoption of the preformed cleat method such as now employed by the defendant should have been obvious to those familiar with the Rosback machine. The facts of record are that in thirteen years of energetic experimentation no one did in fact use the simpler and successful method. I wish you would explain the best you can how, as a matter of simple common sense, you can reconcile your theory as to the obviousness of the successful process and machinery with the fact that they were never used by those who for thirteen years faced continuous failure in the use of the Rosback method and machines?

A. Not having the personal acquaintance of any of the inventors and mechanics who you say were working on the Rosback idea, and never thought of the more obvious and simpler method, I cannot say why they did not do what seems to me the obvious thing. Possibly it was a question of their mental caliber. If that does not answer it, I do not know what it is.

X Q. 63. You have already characterized the underlying Rosback method as broadly novel, haven't you?

A. Yes. So far as I know, that is correct.

X Q. 65. That circumstance indicates that someone in the Rosback group had inventive capacity even beyond that generally called mechanical skill, doesn't it?

[fol. 466] A. So far as the novelty of his ideas is concerned that would be true, but that would not be necessarily true of the value of his ideas.

I am familiar with the patents granted on boxes or box machinery to a succession of workers in the old Rosback group, namely, Howenstine, Knudtson and Uhri jointly, Uhri alone, several machine patents to Rosback, several patents to William P. Healy, two or three patents to Ellsworth E. Flora; and I am further familiar with the fact that these patents, to say the least, indicated inventive capacity within the recognition of the Patent Office, on the part of these individuals who at one time or another joined in the attempt to make a success of the old Rosback process. I do not necessarily see in any of the circumstances I have just stated with reference to these men any reason to suppose that their lack of mechanical ability would account for their failure to adopt the modern preformed cleat method if that method had been obvious prior to October, 1904. I have already expressed the opinion that having gotten off on the wrong foot, so to speak, in starting with what I call the Rosback method, and after investing heavily in endeavoring to make a success of it, they seemed unwilling to abandon the idea until they were forced to do so.

X Q. 68. But your position is, as you have stated it, that it would have been a very simple matter, an obvious matter in fact, simply to modify one of the existing Rosback machines by the addition of cleat pushers. Would that have impaired the investment of these associates in the business?

A. It would have put a good share of the machinery on the junk pile, although not all of it.

X Q. 69. According to your theory it would have enabled these men at least to derive some revenue from their investment, would it not?

A. If they had made the change successfully, it seems they would.

X Q. 70. And your further theory is that they preferred to pursue a profitless business instead of doing what you say would be the obvious thing in order to turn it into a profitable business?

A. I should say rather that while it seems obvious to me, it may not have been obvious to them.

I mean it may not have been obvious to them to remedy their difficulties by adopting the preformed cleat method in some form or other and by modifying one of the Rosback machines to enable it to handle the preformed cleat.

X Q. 72. Where I have referred in my questions to the [fol. 467] "old Rosback method" I have had in mind the method explained in the Rosback patent in which the blank machine is used to make a rigid wired blank consisting of two long strips of cleat material and continuous or substantially continuous side material with the wires stapled thereto and to the cleats, and in which this rigid blank after completion on the blank machine is passed through the so-called step mitering machine, which saws out the individual cleats and step-miters them and scores the under side of the side material along the lines upon which it is to be bent when the blank is folded into box form. This has been your understanding of my references to the "old Rosback method," has it not?

A. Yes.

X Q. 73. If, prior to October, 1904, it had been an obvious expedient to use preformed cleats instead of the long strips of cleat material, and if it had been obvious that the old Rosback machine could be supplied simply with additional (and perhaps differently shaped) cleat pushers arranged to position the preformed cleats in foldable relation,—then those skilled in the art prior to October, 1904, should have found it obvious to adopt these expedients for making the bent veneer Rosback box. That is correct, is it not?

A. It does not seem to me that the bent veneer Rosback blank which you refer to is particularly well adapted for preformed cleats. So long as they insisted on building the so-called Rosback bent veneer box blank, I think they were about as well off to stick to the Rosback method. One of the fatal defects, as I see it, of the Rosback bent veneer box is the fact that you have to employ the long

strips of veneer to form all four sides out of one piece, and this would necessarily make the side material much more expensive. Then, too, I question whether the scored and bent corner idea would ever be practical in competition with the completely cut corner where each of the four sides have their adjacent edges cut before the parts of the blank are assembled. With this explanation I still think the answer is negative.

X Q. 74. When you say that the bent veneer Rosback blank is not well adapted for preformed cleats do you mean to imply that the idea of using preformed cleats is repugnant to the teachings of the Rosback patents and the related patents to Knudtson-Uhri, etc.?

A. I do not know how repugnant it is, but it certainly is not the teaching of the Rosback patents.

X Q. 75. Do you mean to imply that the use of preformed cleats would not have been obvious to the skilled mechanic [fol. 468] who was attempting to follow the teachings of the Rosback patents?

By Mr. Cox: This line of questioning yesterday was limited to prior art as of date prior to 1904 and plaintiffs' counsel is asked whether the same understanding applies to this morning's discussion of the subject.

By Mr. Janney: Each of my questions this morning speaks for itself.

By Mr. Cox: It may be so, but the matter is not so obvious, particularly the last question, and plaintiffs' counsel should have no reason for not answering the question just directed to him.

By Mr. Janney: The witness has not indicated any difficulty in understanding my questions. If he can't understand them, let him say so. Otherwise I think defendant's counsel should refrain from these comments during the progress of the cross-examination. There is no ground in any rule of evidence for objecting to my questions, and defendant's counsel has not stated any ground. His comment is improper.

By Mr. Cox: I am not making comments. I am asking plaintiffs' counsel to clarify what he is inquiring about, but if the witness understands, the answer may be given.

X Q. 76. I repeat verbatim my next preceding question—which still remains unanswered: Do you mean to

imply that the use of preformed cleats would not have been obvious to the skilled mechanic who was attempting to follow the teachings of the Rosback patents?

A. Understanding that you are referring to the mechanics you said experimented with the Rosback invention, I think it would be obvious to them that preformed cleats could be used, but I do not believe that it would be obvious to them that there was any advantage in doing so, so long as they expected to produce the Rosback bent veneer blank.

I have said that the advantage of cheapness of material in using the preformed cleats would have been clear as compared with the use of the long strips of cleat material, but what I had in mind about the inadvisability of sticking to the Rosback method was the fact that under your supposition you would still have to use the expensive single piece veneer sides.

My recollection is that the use of the expensive single sheet of veneer, long enough for all four sides of the blank, is the form of sides disclosed in the so called Ros-[fol. 469] back patents. Without stopping to go over the specifications of all these so-called Rosback patents I am not prepared to say that the solicitor did not somewhere suggest that the sides might be made out of several pieces instead of one.

I think it would have been obvious to the experimenters of the Rosback process that they could use several relatively narrow strips of side material of proper dimensions as a substitute for the single expensive sheet long enough for all sides of the box, if they had taken care to select strips of the proper width so that each strip would be securely stapled and also taking care that the strips which were bent at the corners were of sufficient width on each side of the bend to have at least two staples driven in on each of said sides, but all of that would have involved considerable care in the selection and positioning of the various strips, so that taking everything into consideration, the chances are the use of less skilled labor in handling the single long sheets would more than counterbalance the additional cost of said long sheets.

X Q. 80. I note in the Rosback patent No. 614,438, page 1, line 17, the expression

"each blank is of a length to make four sides of a box, the cleats and sheets being cut away or step-mitered at the proper points to permit folding of the blank."

In this same patent, page 6, line 99, I note the following:

"It will be understood from the foregoing description that the present machine is for the manufacture of box blanks comprising, more especially, a sheet, which may be one or a number of adjacent abutting pieces," etc.

Does this patent teach the idea of making the Rosback blank employing two or more relatively small sheets to compose the side material of the blank?

A. It certainly suggests the possibility of so doing.

The skilled mechanic, prior to October, 1904, in attempting to follow the teachings of the Rosback patents, might have used, consistently with those teachings, the relatively inexpensive "number of adjacent abutting pieces" instead of the single long side sheet; but I say that he would not have found obvious any advantage in using the preformed cleats and in modifying the Rosback machine to suit that purpose.

X Q. 82. And this in spite of the fact that the material [fol. 470] cost of the relatively short preformed cleats would have been substantially less than that of the long cleat strips of necessarily superior material and each long enough to be cut up eventually into four finished cleats. Is that correct?

A. I am not sure that there would have been such a great saving in the matter of the preformed cleats. If the four cleats are all formed from a single strip of the right length to make the four cleats there would probably be less waste of material than if the four cleats were formed from four short strips that had to have a considerable amount of material cut off from the ends to make the cleats of the right length.

X Q. 83. Are you aware of this reference, at page 3, line 54 of the workholder patent in suit No. 1,128,144, to the use of

"separate individual cleats (which may be made of cheap waste material)."

You have no idea that short cleats which can be made of cheap waste material would be anywhere near as expensive as strips of necessarily high grade cleat material long enough to supply four cleats, have you?

A. Well, that would depend very largely on how the so-called waste material would work up. Of course it is obvious that the long strips would be more expensive than short strips which happened to be left over in trimming other material to the right length. I would say that the whole question depends on what your waste material happened to be, but I can very readily conceive of a situation where such waste material would work out much more cheaply than the long cleat material.

Q. 84. Nevertheless, it is your theory that the experimenters with the Rosback method would have perceived no advantage in the use of the preformed cleats, if it had been obvious to them that the preformed cleats could be used and that the Rosback machine could be modified to suit that use. Is that correct?

A. When you take into consideration that it would require more careful workmanship in operating the machines with the preformed cleats as compared with the single long cleat, I think that is correct.

It is my theory that so long as they were manufacturing the Rosback box, the experimenters with the Rosback method would have perceived a disadvantage in using the preformed cleats which would offset the diminished material cost. What I have in mind when I say that it would require more careful workmanship in operating a machine [fol. 471] with the preformed cleats as compared with the single long cleat, is that in assembling the parts in the machine, it is obviously easier to arrange two long strips with square ends in the guides so as to be struck by the cleat pushers than it would be to put in eight short cleats with step-mitered ends so as to be sure they were in their proper relationship to the eight cleat pushers which would presumably have to be stepped in order to co-operate properly with the step mitered ends.

If the experimenters of the Rosback method had used the preformed cleats and had modified the Rosback blank machine for that purpose, that would have avoided entirely the need to saw the cleats apart on the separate step-miter-

ing machine, but you would have to step-miter the ends of the cleats at some stage of the game.

X Q. 88. Do you see any difference in the complexity and difficulty in the manufacturing operation, between step-mitering on a small wood working machine the ends of a cleat a foot or so long, on the one hand, and the step-mitering of the two long cleat strips on a rigid blank at five different places on each cleat strip, and assuring a sufficiently perfect operation of those five different cuttings to insure the proper cleat end relationship of the finished cleats in each line and the proper transverse relationship of the cleats in the two separate lines. Is it not perfectly clear that the preforming of the individual cleats is a vastly simpler and less expensive operation which may manufacturer would prefer to the other method, if other things were equal?

A. By no means. Of course I do not know just how you propose to step-miter the individual cleats in the preforming process and for a single operative I should say that it would take a good deal more time than to pass the blank through the step-mitering machine. If that step-mitering machine was as perfect as I can conceive of such a machine being, there would be no difficulty whatever in getting perfect work on it, always providing that the work was fed to it properly.

X Q. 89. What advantage do you find in the use of preformed cleats in defendant's process which would not have appeared to the experimenters with the Rosback process?

A. The preformed cleat method is certainly the natural one to be employed in producing the wirebound boxes of the type in controversy as distinguished from the Rosback wirebound box. Inasmuch as Rosback contemplated scoring his blank where the corners were to be bent, as long as he had to do that, it would seem to them they might [fol. 472] about as well step-miter their cleat sections at the same operation.

X Q. 90. Of course this does not answer my question at all. You have pointed out no advantage whatever in the use of preformed cleats in defendant's process as compared with what you have said is the possible use of preformed cleats in the Rosback process.

A. I am sorry you are so obtuse. I think the answer explains why there is an advantage in using preformed cleats in defendant's process that would not exist in the Rosback.

X Q. 91. Is there any affirmative advantage in using preformed cleats in defendant's process?

A. Considering the completed cleats on the blank, I should say that the cleats themselves are produced more cheaply in defendant's process than they are in the Rosback process.

X Q. 92. You have said that the precise blank of the Inwood and Lavenberg reissue patent No. 12,725 could have been produced by first making a rigid blank on the old Rosback blank machine, and then passing that rigid blank through a slightly modified Rosback step-mitering machine which would suitably step-miter the cleats and sever the sheets instead of merely scoring them. You so testified did you not, for the defendant in the suit of these plaintiffs against the H. R. Gibbons Box Co.?

A. Presumably. I had, of course, in mind that the Rosback step-mitering machine was capable of fine adjustment and very accurate work.

X Q. 93. With that understanding, you answer in the affirmative, do you not?

A. As at present advised I see no reason why I should not.

X Q. 94. What advantage do you find over that modified Rosback method just described, in making that Inwood & Lavenberg blank by a preformed cleat method?

A. I should say you can use cheaper materials and less expensive machinery, in practicing the preformed cleat method.

X Q. 95. In the workholder patent in suit No. 1,128,144, on page 3, beginning in line 52, and referring to the invention disclosed in that patent, the specification says

"it provides for the first time mechanical means for controlling side material and separate individual cleats (which may be made of cheap waste material) preparatory to applying binding wires thereto by which to form finished [fol. 473] foldable wirebound box blanks or blank sections."

Do you find the subject-matter of that statement just quoted anywhere in the prior art—I mean in the art prior to October 14, 1904?

A. Bearing in mind each and every limitation set out in the quotation, I do not.

X Q. 96. Do you find the subject-matter of that quoted statement in the apparatus disclosed in the workholder patent in suit No. 1,128,144?

A. Yes.

X Q. 97. Do you find the subject-matter of that quoted statement in the alleged infringing machine of this defendant?

A. Ignoring the question of the patentable novelty of the device as applied to defendant's machine, I answer affirmatively.

X Q. 98. In the blank machine patent in suit No. 1,128,145, on page 1, beginning in line 10, the specification contained the following statement of the subject-matter to which the patented invention relates, namely:

"* * * an organized machine comprising fastener applying means, and work-controlling means, arranged to present to said fastener-applying means the parts of a blank for a box having side material and individual cleats, * * * the fastener-applying mechanism and the work-controlling means co-operate to drive staples astride of binding wires, through side sheet material and into the individual cleats, the side sheet material and individual cleats being presented in the proper relations to receive the wire and staples."

Do you find the subject-matter described in the text I have just quoted, anywhere in the prior art?

A. Understanding that the phrase "individual cleats" applies to eight preformed cleats as distinguished from the two cleats subsequently cut up into eight, as shown in the Rosback series of patents, I do not find that subject-matter in the prior art.

X Q. 99. Do you find that same subject-matter in the machine disclosed in the blank machine patent in suit No. 1,128,145?

A. In what seems to me to be a practically inoperative device, yes.

X Q. 100. Your theory as to inoperativeness, as I understand it, is that this workholder patent in suit does not [fol. 474] show any mechanical means for compelling the workholder to travel straight through the machine. Am I correct?

A. That is one objection to its being an inoperative device.

X Q. 101. What else have you in mind as to your theory of inoperativeness of that machine?

A. There is nothing shown to hold the side sheets B in place and the jar of the stapling mechanism would doubtless get the rear sheets out of their proper place.

X Q. 102. I shall return to your theory of inoperativeness at a later point, but first please tell me whether you find in the alleged infringing machines of this defendant the subject-matter of the statement which I quoted in X Q. 98.

A. Ignoring the question of the possible patentable novelty of claims directed to such a structure as applied to defendant's machine, I answer affirmatively.

X Q. 103. In the specification of the blank machine patent in suit No. 1,128,145, on page 4, beginning line 11, I find the statement that the invention of that patent

"provides for the first time mechanical means for controlling side material and separate individual cleats, preparatory to applying binding wires thereto, in combination with means for foldably connecting said parts to form finished foldable wirebound box blanks."

Do you find this subject-matter anywhere in the prior art?

A. My answer is the same as to X Q. 98.

By Mr. Janney: Namely, quoting said answer to X Q. 98 for convenient reference:

"Understanding that the phrase 'individual cleats' applies to eight preformed cleats as distinguished from the two cleats subsequently cut up into eight, as shown in the Rosback series of patents, I do not find that subject-matter in the prior art."

I find that same subject-matter in the machine disclosed in the blank machine patent in suit, subject to my theory

of inoperativeness, to which I have already referred. Stressing the reservation as to patentable novelty to which I have referred, I find that same subject-matter in the alleged infringing machine of this defendant.

X Q. 106. Your position in the suit against the Gibbons [fol. 475] Company and in the present suit has been that the experimenters with the old Rosback machine would have found it obvious to modify that machine by adding additional and differently formed cleat pushers for the purpose of making blanks from preformed cleats on that machine. That is correct, is it not?

A. I think that that is not quite complete in that I think they would have done so if they had wanted to use the Rosback machine to make wirebound box blanks of the character adapted to be manufactured by defendant's machine herein complained of.

It is my opinion that it would have been within the ability of skilled mechanics in the prior art, to have equipped the blank machine of the patent in suit No. 1,128,145 with some sort of mechanical means for holding the workholder to a straight course through the machine if they had found difficulty in doing it by hand. They would not have needed even mechanical skill since that was already known in the art, and as I understand it, the guides were purposely omitted in the patent application so that they would apparently not infringe the prior art patent. I do not imply that the patent document if it had shown guides might have been found to infringe some other patent, but people who might become interested in the patent would find that if they ever manufactured a machine in accordance with the disclosures of the patent would thereby infringe the patent, and for that reason they would refuse to become interested in it. So far as my theory of inoperativeness of the blank machine of the patent in suit relates to the omission of means for guiding the workholder in a straight course through the machine, that alleged inoperativeness could be cured in an obvious manner by any skilled mechanic familiar with the prior art.

X Q. 110. As to your theory that the machine might be inoperative because the patent disclosure has nothing for holding down the side sheets B; the blank machine patent in suit expressly refers the reader (see page 2, line 110) to the

disclosure of the workholder application, and that latter disclosure includes means for holding down the side sheet B; hence any mechanic attempting to follow the teachings of this blank machine patent could cure this alleged inoperativeness in an obvious manner, could he not?

A. If he knew how to get a copy of the companion patent, he could.

X Q. 111. Is there any other reason you have for suppos- [fol. 476] ing that the blank machine of the patent in suit might be considered inoperative?

A. Only that it is not now used by complainants.

X Q. 112. Do you pretend to base any conclusion of inoperativeness upon that fact after the progress in the wirebound box art since 1904, with which you must be to some extent familiar?

A. Not operativeness in the strict sense. What I rather meant to imply was that it was not a desirable form of machine.

X Q. 113. You are aware of the fact, are you not, that this record shows that the machine of the blank machine patent in suit No. 1,128,145, with the addition of guides for the workholder and a hold-down for the side sheets, was used commercially for at least two or three years beginning in 1904?

A. I remember that it was used, but not how long.

X Q. 114. In the method patent in suit No. 1,128,252 on page 1, beginning in line 14, the patented method is referred to as that

"of making wirebound boxes, box blanks, or blank sections, by appropriately assembling and securing together box parts comprising side material in the form of a sheet or sheets or strips, separate or individual cleats, and fastening means such, for instance, as staples which may be driven astride of binding wires and through the side material into the cleats."

Do you find the method thus characterized anywhere in the prior art?

A. I do not recall that there is anywhere a description of the making of such boxes as a method, but I do not see how the box of the Healy patent 768,123 could be manu-

factured commercially without employing such a method as is described by your quotation. That would certainly be the obvious way to make the Healy box, and you will of course understand that considered as a method there would be no difference between nailing the sheet metal strips 7 of the Healy patent over stapling the wires of the Rosback patent, or vice versa.

X Q. 115. Then, according to your theory, no significance attaches, as regards the method, to the difference between uniting separate box sections by wires and uniting them by steel straps, in spite of differences in result which might ensue from the use of the wire as compared with the use of straps. Is that correct?

[fol. 477] A. That is correct, because uniting them by wires and staples was well known long prior to the date of the alleged invention in controversy, and so far as the results in the box are concerned, you are obviously confusing the process with the product, or the method with the box.

X Q. 116. Please note that my question referred to uniting separate box sections by wires. Are you correct in saying that that was well known long prior to the date of the alleged invention in controversy? If so, where can you point to that in the prior art?

A. More specifically what I meant was that the Rosback series of patents showed the uniting of the same elements as were employed in the Healy patent by wire instead of the steel straps employed in the Healy patent. Your original quotation in X Q. 114 is such a broad statement that I do not think it would necessarily imply the process wherein the cleats were preformed.

It may have been the intention of the writer of the specification, in using the expression "separate or individual cleats" to refer to preformed cleats, but the language is scarcely so definite as to demand that the cleats be preformed. However, in view of the fact that it appears in the specification of this Inwood & Lavenberg method patent, that limitation might be understood. I did not particularly take that into consideration in my previous answer.

X Q. 118. Assuming that my above quotation does refer to the assembling of preformed cleats, please state whether or not the method so described is practiced upon the alleged infringing machine of this defendant?

A. Described as broadly as the foregoing quotation, and ignoring the question of the patentable novelty of any such process as practiced with any machine, and more especially with defendant's machine, I will answer the question "yes."

Referring to Plaintiffs' Exhibits Nos. 9 and 16, which show respectively the so-called "clincher bars" 36 and the so-called cleat detent 36 used on certain of defendant's machines, it is true that in the operation of these devices an advancing cleat, before its front end reaches the stapling point, has some part of its front end engaged by the clincher bar 36 or detent 36, as the case may be. The effect of that engagement of the front end of the cleat by the clincher bar or detent is to tend to stop the forward movement of the cleat, the primary effect of which would be to hold the rear end of the cleat firmly against the pusher. I believe that this action [fol. 478] of the clincher bar or detent serves to insure, before the front end of the cleat reaches the position to receive the staple, that the rear end of the cleat shall be correctly positioned against the pusher which follows it. When the advance end of the cleat has passed beyond its initial engagement with the clincher block or detent, the clincher block or detent thereafter presses with spring pressure against the side of the cleat. With the type of machine built by defendants and here in controversy, the cleat is necessarily at rest during the driving of the first staple, driven near the advance end of the cleat.

X Q. 125. And when the staple is driven, it is true that the following conditions exist, namely, the pusher at the rear end of the cleat is stationary with the rear end of the cleat positioned against the pusher; the channel in which the cleat rests is of course also stationary; the clincher bar or detent is stationary and is exerting a spring pressure against one side of the cleat tending to clamp the cleat against the opposite wall of the channel. That is correct, is it not?

A. Yes.

X Q. 126. Thus during this critical moment of driving the staple, the pusher at the rear of the cleat has temporarily ceased to perform a pushing function, and has become for the moment a positioning device for defining the position of the cleat when it is to receive the staple; and the spring pressure on the side of the cleat assists to insure

the proper relationship of the rear end of the cleat, and the positioner behind it. Is that correct?

A. Yes, you can describe it that way, and I might add that the pusher in defendant's machine at this time is functioning in identically the same manner as the cleat pusher 8' of the Rosback patent 614,348.

Assuming that we have been talking about the first or advance cleat for a blank, the same positioning functions are performed by the parts referred to preparatory to the driving of each staple in the succession driven in to that particular cleat.

X Q. 128. Then when another cleat in the same line comes along toward the stapling point (in making the alternate cleated blank on defendant's machine) it is the driving of the first staple into this next following cleat which secures the wire thereto and renders permanent the foldable relationship between the first cleat and this following cleat in the same line. Is that correct?

A. I don't see why you limit it to the first staple as all the staples in the second cleat will have that function, but [fol. 479] as I understand your question, the answer is in the affirmative.

It is correct that, the wire having been stapled to the first cleat, the foldable relationship of the first cleat to the second cleat is not rendered permanent until at least one staple has been driven into the second cleat; and the driving of that one staple renders permanent the distance which is to intervene between the rear end of the first cleat and the advance end of the second cleat. Preparatory to the driving of this first staple in the second cleat, the pusher at its rear end and the cleat itself stand at rest in the stationary channel and the stationary clincher bar or detent exerts spring pressure against the side of the cleat to assist in insuring the proper relationship between the rear end of the cleat and the pusher. The thing which defines the foldable relationship between the first and the second cleat, before that relationship is rendered permanent by the attachment of the wire to the second cleat, is the distance between the pusher at the rear end of the first cleat and the pusher at the rear end of the second cleat as they have been adjusted on the chain.

X Q. 132. Now please refer to the blank machine patent in suit and the workholder patent in suit and consider them together. Please assume that the spacer blocks are cut away so that none contacts with the advance end of any cleat; and assume also that the operator who assembles cleats in this workholder has intelligence enough to locate the cleat with its rear end against the appropriate block and with the spring 15 pressing against the side of the block. In view of the fact that the workholder patent (page 3, line 47) refers to the operation of spring 15 as "firmly binding the cleat in position on the bar," the cleats would be held in proper relation to the blocks at their rear ends during the normal travel of the workholder throughout the machine, would they not?

A. They would so far as the springs 15 proved effective.

X Q. 133. In view of the statement which I quoted from the specification of the workholder patent, have you any doubt that the springs 15 would be effective to hold the cleats in position in the normal operation of the machine?

A. I have no doubt but that they could be made effective.

X Q. 134. Then as this workholder described in X Q. 132 is advanced into the machine preparatory to driving the first staple near the advance end of the first cleat, it would [fol. 480] be true that the following conditions would exist, namely: The cleat and the block at its rear end would be stationary; the channel in which the cleat rests would also be stationary; and the spring 15 would be exerting spring pressure against one side of the cleat tending to clamp the cleat against the opposite wall of the channel. That is correct, is it not?

A. Yes, but I might observe that the form of your question would indicate that sometimes the cleats move relatively to the channel, as in defendant's machine, which is not a fact in the machine of the patent in suit.

X Q. 135. Thus in the use of the workholder described in X Q. 132, during the critical moment of driving the staple, the block at the rear of the cleats has temporarily ceased to travel with the cleat, and has become for the moment solely a positioning device for defining the position of the cleat when it is to receive the staple; and the spring pressure on the side of the cleat assists to insure the proper relationship of the rear end of the cleat, and the positioner behind it. Is that correct?

A. I should say that while the substance is correct, the language is somewhat misleading as it would imply that at some time the spacer block is a cleat pusher, which is not a fact, as the cleat rests upon and is carried with the workholder. Otherwise I think it is correct.

I think it is correct to say that my position is that the block at the rear end of each cleat in the workholder described in X Q. 132 does not perform any pushing function whatever on the cleat, as the workholder travels through the machine. It certainly has no such pushing function as do the cleat pushers of defendant's machine and the cleat pusher S' of the Rosback patent 614,348.

X Q. 137. Comparing the workholder described in X Q. 132 with defendant's machine the difference in respect to this pushing function, as I see it, is this; in transporting the cleats from one point to another in defendant's machine the block at the rear of the cleat pushes the cleat through a stationary guide, while in the workholder described in X Q. 132 the block at the rear of the cleat accompanies the cleat in its travel, and whether or not it literally pushes the cleat, it at least prevents retrograde movement of the cleat in relation to the block. And also the channel travels with the cleat instead of remaining stationary as in defendant's machine. Do you agree with my statement?

A. Well, it can be put that way, but the fact remains that defendant's structure is that of the prior art Rosback patent [fol. 481] 614,348 and not that of complainant's patent 1,128,144.

The Rosback structure has no capacity for locating two cleats in line in foldable relationship to permit them to be flexibly connected by wire. Rosback only needed to push two cleats at a time, but he used the same mechanism to push two cleats that defendant has duplicated to push four cleats at a time.

X Q. 139. Now having made fairly clear your view respecting the pushing or transporting function performed in defendant's machine, I now ask you to confine your attention for a while to the strict positioning functions by which cleats, having been transported to the stapling point, are then located and maintained in definite position to receive staples correctly, this being in my view the impor-

tant consideration. Returning to the operation of the workholder described in X Q. 132, the same positioning functions are performed as described in X Qs. 125 and 126 preparatory to the driving of each staple in the succession of staples driven into the first cleat of the blank. That is correct, is it not?

A. Yes, and precisely the same thing is true of the feeding mechanism of the Rosback patent 614,348 where you have the same channel, the same cleat pusher, and the spring-pressed bar B' operating to "exert a spring pressure against one side of the cleat, tending to clamp the cleat against the opposite wall of the channel.

X Q. 140. Again in the operation of the workholder described in X Q. 132, after the wire has been stapled to the first cleat in the row, then when another cleat in the same line comes along toward the stapling point, it is the driving of the first staple into this next following cleat which secures the wire thereto and renders permanent the foldable relationship between the first cleat and the following cleat. Is that correct?

A. Provided they are both in the same blank—yes.

X Q. 141. And is the subject-matter described in X Q. 140 disclosed in your pet Rosback patent?

A. It is, only that at the time the wire is stapled the cleats have not yet been separated.

X Q. 142. Please point out where your Rosback patent discloses the idea of two separate cleats and the driving of a staple into the second of the two cleats to render permanent the foldable relationship between the two cleats.

A. I think you can see that the two cleats, or rather the foud cleats, are in the Rosback blank at the time the staples are driven, but the cleats have not been separated from each [fol. 482] other yet. Of course Rosback did not contemplate preformed cleats, as has been stated time and again. That makes no difference, however, as I see it, in the fundamental operation of stapling the side pieces to the cleats with the binding wire. It is merely a question of time, broadly speaking, of when the step-mitering or separation of the cleats is performed. In other words, if it were attempted to define the two operations as a series of steps, the principal distinction would be that there is a transposition in the order in which the steps were performed.

X Q. 143. Then it is your position that when the Rosback patent teaches the use of a continuous cleat strip which is wholly rigid from end to end when the wires are applied to it, and is thereafter severed to separate it into four pieces, that that teaching substantially discloses the idea of first attaching the wire to one individual cleat and then bringing up a second individual cleat and attaching the wire to it to render permanent the foldable relationship between the two separate cleats. Is that a correct statement of your position?

A. I would say that is correct so far as the question of any patentable invention in the method patent in suit is concerned, in view of the fact that preformed cleats has been used in every known art almost from time immemorial. Almost every settler's door that was built in the early history of the United States was made up of blanks secured together by preformed cleats.

X. Q. 144. Again referring to the operation of the machine as described in X-Q. 132, and assuming the wire has been attached to the first cleat in the line, then preparatory to the driving of the first staple into the second cleat, the block at its rear end and the cleat itself stands at rest, the channel stands at rest, and the springs exert spring pressure against the side of the cleat to assist in insuring the proper relationship between the rear end of the cleat and the block. That is correct, is it not?

A. I question whether the spring pressure is exerted so much to secure the proper relationship of the cleat to the spacer block as it is to secure the proper relationship of the cleat to the end of the side to which it is attached, as it is necessary for the latter function and with the teachings of the patent in suit, is totally unnecessary for the first function or rather for the one mentioned in your question.

X. Q. 145. With that explanation, do you answer X Q. 144 in the affirmative?

A. With the explanation or exception noted, I do.

[fol. 483] In the use of the machine as described in X Q. 132, the thing which defines the foldable relationship between the first and second cleat, before that relationship is rendered permanent by the attachment of the wire to the second cleat, is the distance between the block at the rear end of the first cleat and the block at the rear end of the

second cleat as they have been adjusted in relation to each other. The Rosback patent does not disclose this defining of the foldable relationship between the first and the second of two preformed cleats before that relationship is rendered permanent by the attachment of the wire connecting the two separate cleats. Owing to the transposition of the steps I should say that that relationship is defined by the way the step-mitering saws are set in practice in the Rosback process.

X. Q. 148. Is it your theory that what you call the transposition of steps which differentiates the Rosback method, and the preformed cleat method disclosed, for instance, in the workholder patent in suit is not a sufficient differentiation to render the two methods non-equivalent? In other words, are the methods referred to substantially equivalent in spite of what you call the transposition of steps?

X. I have not given much thought to that phase of the situation. What I had in mind in suggesting the transposition of steps was in connection with the comparison of the method practiced by defendant on what is virtually an old Rosback machine as compared with the method practiced by Rosback on practically the same machine. I am, of course, now referring to the Rosback machine without the step-mitering attachment or separate machine. When you consider the machine of the patent in suit where the material is assembled in what is virtually one separate machine, and is then stapled by fastening it through another distinct machine, the resemblance to the Rosback method becomes much less apparent. Certainly the methods practiced by Rosback and by defendant's licensees are much more nearly full equivalents than the methods practiced by Rosback and by the disclosures of the patents in suit upon which the method patent in controversy is based.

X. Q. 149. When you speak of "the method practiced by defendant on what is virtually an old Rosback machine" you recognize, of course, that the old Rosback machine had no provision whatever for relating any two preformed cleats in line with each other and in foldable relationship and that the product of that old Rosback machine was a perfectly rigid blank requiring its cleat strips to be sawed into [fol. 484] four pieces after the blank machine had entirely completed its work; while on the other hand defendant's

machine, in spite of the fact that you say it "is virtually an old Rosback machine" does provide for relating two preformed cleats in line with each other and in foldable relationship, and the product of defendant's machine is a foldable blank having four separate sections unattached except by the wire. That is correct, is it not?

A. No. It is true that the product of the old Rosback machine before the step-mitering of the cleats was finally effected was a perfectly rigid blank, as the use of said machine is disclosed in the Rosback and kindred patents, but it is not true as to possible operation that the old Rosback machine had no provision whatever for relating any two preformed cleats in line with each other and in foldable relationship. It is entirely possible to make the blanks manufactured by defendant's licensees on the old Rosback machines without changing them and by the use of preformed cleats and separate side sections, and I am informed that that was done to some extent.

By Mr. Janney: I move to strike out the grossly improper and incompetent final statement of information said to be possessed by the witness.

X. Q. 150. Please point out in any Rosback or kindred patent of the prior art "provision for relating any two preformed cleats in line with each other and in foldable relationship."

A. That could be done in this manner: Have the first and third side pieces precleated as is practiced by defendant's licensee, Maxwell Brothers, and assemble the parts on the machine with the first precleated side section leading, then have the loose cleats for the second side section placed in the guides with the second side veneer laid on them and engaging the side of the first section; then place the third precleated side section in place; and finally place the last two cleats in the guides with the side sections over them, and then have the two cleat pushers engage a final pair of cleats and the fourth side section and the blank sections thus assembled can be run through the machine. It is also possible to make such a blank without using the precleated section on the Rosback machine, but in that event the four cleats on each side have to be spaced apart by what would be virtually six removable cleat pushers that would constitute no permanent part of the machine, but which would

in effect function as cleat pushers during the stapling operation.

X Q. 151. You have wholly evaded my question. I did [fol. 485] not ask for your own conjecture, in the light of your knowledge of the Inwood & Lavenberg invention and this defendant's practices. I asked you to point out in any Rosback or kindred patents of the prior art "provision for relating any two preformed cleats in line with each other and in foldable relationship." Please meet this question fairly and squarely. If you can point out any such disclosure, please do so; if you can't, then say so honestly, and don't supply uncalled for speculation.

A. I have not said that there was any disclosure in any of the Rosback or kindred patents of the prior art of the method of making preformed cleated blanks as set out in my answer to X Q. 150. I have stated how the mechanism disclosed in the Rosback patent could be operated to make such blank. If the machine disclosed is capable of "relating any two preformed cleats in line with each other and in foldable relationship" I should say that it contained "provision" for doing that, although that possibility presumably was unknown to the draftsman of the specification of the Rosback patents, as he included no description of any such operation of the machines.

X Q. 152. Do you find any statement whatever in any Rosback or kindred patent of the prior art indicating that any mechanical element was intended to or could operate as a provision for relating any two preformed cleats in line with each other and in foldable relation. I am asking not for your own conjecture but for any statement you may have been able to find in a prior art patent.

A. Without stopping to reread all those Rosback patents at this time, I cannot say with absolute certainty, but I should say that it is highly improbable that I could find any such statement for the reason that the Rosback disclosures are as far as I can recall all concerned with the making of the blank by what we have called the Rosback method of stapling the side pieces to the rigid cleats and subsequently sawing them to produce the step-miter at the ends.

I admit that I am not prepared to point out any such statement in any prior art patent as inquired about in X Q. 152.

So far as I know, Rosback himself originated the idea of trying to use the Rosback machine in the manner described in my answer to X Q. 150. The source of my supposition to that effect is hearsay. Of course I have no direct knowledge, because I have never met Rosback.

X Q. 156. Can you point to any particle of evidence in [fol. 486] any prior art patent or elsewhere in this record to substantiate your supposition that Rosback originated the idea of trying to use a Rosback machine in the manner described in your answer to X Q. 150?

A. It is not "supposition," Mr. Janney, but information. I cannot point it out in prior art patents. So far as I know there is no such evidence in this record.

I have never tried to make, nor have I ever witnessed any attempt to make a box-blank in the manner described in my answer to X Q. 150 employing only two cleat pushers at the rear ends of the respective rows of cleats. I have no personal knowledge founded upon any observation, that box-blanks could be made in the manner described. The first hypothetical method described in my answer to X Q. 150 involves the assembling of the four side sheets with their adjacent edges contacting. That method would produce substantially the blanks manufactured by this defendant's licensee. In the matter of relationship of the adjacent edges of the sides of the sheets, it would be more like the blank disclosed in the patents in suit. Considered as a method, it seems to me that the first method which I have described in answering X Q. 150 would be the substantial equivalent of the method used by defendant's licensees in the use of defendant's machine. There would be a little difference in the corners of the completed box. So far as the results produced are concerned, I think that the second method which I have described in answering X Q. 150 would be the substantial equivalent of the method used by defendant's licensees in the use of defendant's machines. Inasmuch as a method is in patent law theoretically supposed to be capable of operation without any machinery whatever, it seems that the two methods would be practically the same thing. Considered broadly as methods, it follows that the first method I described in answering X Q. 150 would be the equivalent of the second method I described in that answer. With the first method described, the adjacent side edges of the completed blanks before they

are folded into box form would necessarily be substantially in contact, whereas in the second method described, they could be separated as far as might be deemed desirable. I think that the three blanks would be substantially equivalent, as produced respectively by the first and second method described in my answer to X Q. 150 and by the method practiced upon defendant's machine. I do not understand that the matter of the exact degree of separation of the adjacent edges of the side pieces in the blank before it is folded into box form is material, and that was [fol. 487] the only difference that could result in the three methods.

X Q. 165. In the first method described in your answer to X Q. 150, what means would define the foldable relationship of the cleat of the first and precleated section with the aligned loose cleat of the second section?

A. The first three sides and the engagement of the loose cleats with the cleats secured to the third side section.

X Q. 166. How would the loose cleat be engaged with the cleats secured to the third side section?

A. The advancing ends of the secured cleats would engage the rear ends of the loose cleats.

X Q. 167. Will you make an informal sketch to indicate the relationship between the rear end of the loose cleat and the advanced end of the next following and preattached cleats?

A. There are several possibilities, and I have sketched out one of them.

By Mr. Janney: I note on the record that it was three minutes before 11 when the witness was handed a sketch pad and began work on this sketch. It was exactly half past 11 when he announced the completion of the sketch just before he began to dictate his answer. In other words, it required 33 minutes of apparently close concentration to enable the witness to formulate and execute this extremely simple sketch.

By Mr. Cox: Neither the witness nor defendant's counsel knew that plaintiffs' counsel was going to hold a stopwatch on the witness in making the sketch and during the time the witness was making the sketch conversation occurred out loud in the room having nothing to do with the case and within three or four feet of the witness and doubt-

less his mind was distracted by it. Furthermore, the witness had no tools but simply a stiff pad on his lap, and furthermore, he has gone further than to make an informal sketch. He has made a pencil drawing such as any draftsman would make. Hereafter if time is of the essence of making a sketch plaintiffs' counsel is asked to say so at the beginning.

By Mr. Janney: The sketch just made by the witness is offered in evidence as Plaintiffs' Cross-Exhibit X-1.

The assembly of cleats and sheets shown in this Cross-Exhibit X-1 is the assembly I intended to describe in the [fol. 488] first branch of my answer to X Q. 150. Considered broadly as a method, I would say that the method illustrated in Cross-Exhibit X-1 is the substantial equivalent of defendant's method.

X Q. 170. And when the binding wires had been applied to the assembly shown in Cross-Exhibit X-1, the resulting blank would be the equivalent of the full-cleated blank made upon defendant's machine, would it?

A. It would be what I would call a substantial equivalent, although as I recall it, defendant's licensees do not employ step-mitered cleats, and there is one corner of the box there that would require a very pronounced cutting of the wires into the side of the material on that corner. I am not sure that I have the drawing just right, but I have not previously considered closely the requirements and possibilities of this manner of using the Rosback machine to produce a blank with preformed cleats.

(Here follows Plaintiffs' Cross-Exhibit X-1, side folio 488½)

By Mr. Janney: I invite the attention of the court to the circumstances that Mr. McElroy in answering X Q. 149 made the unequivocal statement that "it is entirely possible to make the blank manufactured by defendant's licensees on the old Rosback machines without changing them and by the use of preformed cleats and separate side sections." Then in answering X Q. 150 Mr. McElroy, with no qualifications or apparent uncertainty, proceeds to explain how this could be done. Having used more than half an hour in formulating a sketch which would repre-

**Plaintiffs' Cross-Exhibit X-1, McElroy Drawing of Hypothetical Blank Assembly Showing Two Pre-Cleated Sections and Step-Mitered Cleats.**

sent what he attempted to describe, and having found the result in the sketch evidently unsatisfactory, he now admits that he has not "previously considered closely the requirements and possibilities of this manner of using the Rosback machine to produce a blank with preformed cleats."

I further invite the attention of the court to the fact that the box-blank shown in McElroy's sketch, Cross-Exhibit X-1 shows three different relationships of adjacent cleat ends:

(1) Considering the box section at the right-hand of the sketch to be the first in the series, a cleat of this first section is spaced from the cleat of the second section, the distance approximately equal to twice the thickness of one of the mitered steps.

(2) Between the cleat of the second section and the cleat of the third section there is no space at all; they are shown in abutting contact.

(3) The extreme advance end of the blank, at the right [fol. 489] of the sketch shows the cleat end spaced from the edge of its sheet a distance equal about the thickness of one mitered step, while the cleat at the extreme rear of the blank at the left of the sketch, the rear end of which should be arranged to mate with the front end of the cleat at the right-hand extremity of the blank, has its end flush with its sheet edge, so that, for purposes of relationship in the finished box, the mating of the front and rear ends of the blank would be of different character from the other two species described.

I make the foregoing statement in order to record at this point some of the particulars of this sketch, for convenient reference.

X Q. 171. In answering X Q. 167, you said there were several possibilities besides that shown in Plaintiffs' Cross-Exhibit X-1, apparently referring to possible assemblies of cleats and sheets in accordance with the first method described in your answer to X Q. 150. Will you make, please, a sketch of another of these possibilities?

A. It is now time to adjourn, and I will do so at our next meeting.

By Mr. Janney: I enter earnest objection against the witness' refusal to answer this question before adjourn-

ment. It is now only five minutes past 12. If the witness is honestly aware at this time of the other possible assembly inquired about in my next preceding question, it certainly should not take him more than a further half hour to comply with my request for a sketch and to answer the question. I insist upon a response to my question; and I call upon defendant's counsel to request the witness to refrain from interrupting this cross-examination by adjournment at this point. The witness has no right in any case to insist upon an adjournment at this time.

Because the witness has so glibly referred to methods of using the old Rosback machine and different possible assemblies, I want an opportunity to test both the good faith and the accuracy of his statement without giving him from Saturday noon until Monday morning in which to try to bolster up the statements which he made apparently without any hesitation and with the appearance of having founded them on dependable facts already within his knowledge. The witness' sketch (Cross-Exhibit X-1 indicates (as plaintiffs will fully demonstrate) that the pretended capacity of the Rosback machine referred to by the witness could [fol. 490] not possibly produce a practical box-blank in the manner so confidently described by the witness, at least with any such assembly as that shown in Plaintiffs' Cross-Exhibit X-1. If the witness now knows of any better assembly upon which he founded his assertions as to the capacities of the Rosback machine, now is the time for him to say so and to show the assembly in the sketch.

Statement by the witness: I dislike to be disobliging, but the facts are I got up at a very early hour in order that the cross-examination might begin at the unreasonable hour of 9:30, and I had a very early breakfast as a consequence. I am now tired and hungry and I do not care to be bullied by anybody, and especially by plaintiffs' counsel. I have made it a practice all summer of playing golf Saturday afternoon and all day Sunday and propose to adhere to that for this week-end.

By Mr. Cox: There is no desire on the part of defendant's counsel to interfere with the cross-examination, but the witness has now been on the stand about three hours, less about ten minutes, and the only reason the session was held at all this morning was to accommodate both the witness and plaintiffs' counsel, both of whom said they had

to leave Chicago next week. I think the plaintiffs will be sufficiently protected if the witness will promise that he will not discuss this question with anybody prior to going on the stand Monday morning at 10 o'clock.

By Mr. Janney: I invite the court's attention to the grossly improper procedure by both the witness and defendant's counsel in calling for an adjournment while a critically important question stands upon the record unanswered. Not a word was said about adjournment, and then first by the witness himself, until after the still unanswered question had been placed upon the record. I note that the witness has just now withdrawn from the room and left the office of defendant's counsel.

I protest vigorously against this high-handed disregard of the rights of cross-examining counsel. I challenge the good faith of the witness in withdrawing at this time and while I do not challenge the good faith of defendant's counsel, I feel certain that defendant's counsel should have controlled his witness to the extent of obliging him (a paid expert) to at least answer the pending question. I give [fol. 491] notice that I may move to strike out the entire deposition of this witness, or such part thereof as I may be advised, on the ground that the cross-examination at a critical point is being grossly obstructed.

By Mr. Cox: Defendant's counsel regrets the incident, but it seems as if plaintiffs' counsel was rather thoughtless, to say the least, to put a question at ten minutes of 12 Saturday noon that would require apparently as much time as the previous answer took.

Adjourned until Monday morning, July 20th, at 10 o'clock, at the office of Cheever & Cox.

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Monday, July 20th, 1925.

Testimony resumed at the office of Cheever & Cox, 1133 Monadnock Building, at 10:40 a. m., at request of defendant's counsel.

Present: Same as before.

By Mr. Cox: At the end of the session last Saturday plaintiffs' counsel said that he might move to strike out the

deposition of this witness on the ground that the cross-examination at a critical point was grossly obstructed. Defendant's counsel believes that this was said under "imaginary stress of circumstances," and I presume the session will proceed as expected, but notice is given that if this session is now continued it will be taken as a waiver. These sessions are conducted at a very substantial expense, and if plaintiffs' counsel really should desire to bring a motion to strike, it should be brought instant so that in case plaintiffs should prevail the defendants as well as the plaintiffs will be saved the further expense of taking the deposition.

By Mr. Janney: If I proceed with this cross-examination it shall be without any waiver whatsoever of any objections which I have made to the attitude of this witness and to the failure of defendant's counsel to control the witness (a paid expert) at least to the extent of preventing the witness from precipitating an adjournment in order to escape the need to answer an embarrassing question. If cross-examination continues and if defendant's counsel sufficiently controls his witness so that the progress of the cross-examination is not improperly interfered with, it may be unnecessary to bring a motion to strike. On this un-[fol. 492] derstanding, and without any waiver whatsoever, I withdraw temporarily my notice of a possible motion to strike; but I reserve the right to renew that notice on the grounds already stated and on any other grounds that may appear to me to be proper.

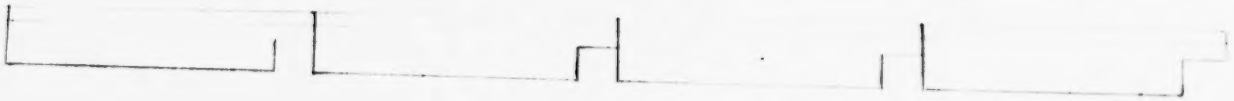
Cross-examination of witness resumed by Mr. Janney without waiver of objection.

X Q. 172. Are you now prepared to respond to X Q. 171 which was propounded to you the day before yesterday, and which I now repeat verbatim as follows:

"X Q. 171. In answering X Q. 167, you said there were several possibilities besides that shown in Plaintiffs' Cross-Exhibit X-1, apparently referring to possible assembly of cleats and sheets in accordance with the first method described in your answer to X Q. 150. Will you make, please, a sketch of another of these possibilities?

By Mr. Janney: I note that according to my watch the witness began work on this sketch at two minutes before 11 o'clock.

Plaintiffs' Cross-Exhibit X-2, McElroy Drawing of Hypothetical Blank Assembly Showing Two Pre-Cleated Sections and Plain Mitered Cleats.



Plaintiffs' Cross-Exhibit X-3, McElroy Drawing of Hypothetical Blank Assembly Showing Single Step-Miter at One End of Each Cleat

By Mr. Janney: The sketch just made by the witness in about two minutes and a half is offered in evidence as Plaintiffs' Cross-Exhibit X-2. In this Exhibit X-2 are the four cleats illustrated supposed to contact with each other end to end in succession?

(Here follows Plaintiffs' Cross-Exhibit X-2, side folio 492½)

A. Yes.

The four sheets there illustrated are supposed to contact with each other edge to edge in succession.

X Q. 174. Now will you please make a sketch of any other possible assembly which you say could be used in making a box blank, the equivalent of the blank made upon present defendant's machine, and in accordance with the first method described by you in your answer to X Q. 150?

A. There are other possibilities, but I do not just at present think of any it would be worth while to bring to the court's attention unless some change were made in the design of the cleats over those we have been considering, i. e., the straight-mitered end, the step-mitered end, the tongue and groove end, and the plain overlapped. It does not seem to me that the tongue and groove or the plain overlapped would adapt itself to the method of procedure outlined by me.

X Q. 175. Of course, it is no part of your province or privilege to decide what "would be worth while to bring [fol. 493] to the court's attention." I repeat X Q. 174 and ask you to respond to it.

By Mr. Janney: The sketch just made by the witness is offered in evidence as Plaintiffs' Cross-Exhibit X-3.

(Here follows Plaintiffs' Cross-Exhibit X-3, side folio 493½)

X Q. 176. Besides the assemblies shown in Plaintiffs' Cross-Exhibits X-1, X-2, X-3, what, if any, are the other possibilities as to assemblies which you think might be used in the practice of the first method described in your answer to X Q. 150?

A. I did not get time to figure out anything else. I was mindful of the injunction not to discuss the matter with

anybody after adjournment on Saturday, but I did think about it awhile Saturday night before retiring, and the two additional sketches you have are all that I stopped to think about at that time or up to the present time.

X Q. 177. Then the assemblies shown in Plaintiffs' Cross-Exhibits X-2, X-3, were not apparent to you until after our adjournment on last Saturday. In other words, until after you had declined to answer X Q. 171. Is that correct?

A. My recollection would be that I considered the possibilities of X-2 but not of X-3.

X Q. 178. In answering X Q. 150 did you have in mind, as one of the possible assemblies, the arrangement shown in Plaintiffs' Cross-Exhibit X-2?

A. I would say that as far as I can recollect at this time I had in making that answer not gone into much detail in my own mind as to just what forms of cleat pushers should be employed. I should have said cleats instead of cleat pushers, and also just what should be their precise relationship to sheets. What I did have in mind was the fact that by employing alternate precleated blanks it would be possible to push a pair of loose cleats through the machine without having more than the original pair of cleat pushers shown in the Rosback patents.

X Q. 179. Then when you answered X Q. 150 you had in mind no specific assemblies of cleats and sheets by which might be practiced the first method described by you in that answer. Is that correct?

A. If by specific you mean every detail, that is correct.

X Q. 180. When you answered X Q. 167, which of the assemblies shown in Plaintiffs' Cross-Exhibits X-1, X-2 and X-3 did you then have in mind?

A. I certainly had No. 1 since that is the one produced. [fol. 494] As I recall it, I had No. 2, and for a time considered the possibility of using tongue and groove cleats, but finally concluded they could not be depended upon. It would be my recollection that No. 3 was first considered Saturday night.

X Q. 181. This morning it took you about two minutes and a half to draw the sketch Plaintiffs' Cross-Exhibit X-2. If you had that assembly in mind when you answered X Q. 167, why didn't you give me that sketch frankly and honestly in answer to X Q. 171 instead of then insisting

upon an adjournment at a few minutes after 12 o'clock last Saturday?

A. Knowing my motive in the matter, your insinuation about my being dishonest and insincere are absolutely unwarranted. As I said on the record at the time I was very tired and hungry and two and a half hours of cross-examination is enough for anybody at one session. Whether or not I consulted anybody else about the possibilities in the meantime I did not at the time consider important because I thought the court would be interested in learning facts, rather than in learning what capacity I might have as a draftsman or designer. On further reflection I consider that it would be fairer to you if you wanted to show the court what I could or could not do, if I did not consult anybody else about the matter, and so with that idea in view I have carefully avoided discussing it with anybody else, so that whatever you may have learned by the continuation of this cross-examination is purely original with me.

X Q. 182. I have never recorded in this record any remark about your having conferred with anybody else on the subject of this cross-examination; on the contrary, on Saturday, the day before yesterday, after you had insisted upon an adjournment, I told Mr. Cox that I had not the slightest objection to his conferring with you on the subject of your answer to X Q. 150 and the sketches I had requested. Consequently your references to the possibility of your having conferred with somebody else, and to your having originated your own testimony, are wholly beside the point.

I am trying to test the good faith of the testimony which you gave on last Saturday morning, and I ask you again why, if you had in mind the subject-matter of Plaintiffs' Cross-Exhibit X-2 when you answered X Q. 167, why you did not take two minutes and a half (which is all you required this morning) to make that sketch before insisting upon an adjournment?

[fol. 495] A. Well, I expect the truth was that I lost my temper because I thought you were trying to bully me.

X Q. 183. You had no opportunity whatever to lose your temper or to suppose that I was trying to bully you until first X Q. 171 had been placed of record and you had in-

sisted upon an adjournment. Please try again and see if you can answer my next preceding question.

A. I believe that I have already said that I think I had the sketch No. 2 in mind, but it is a type of cleat that I do not recall having seen used in the machines in controversy, and for that reason I thought it best at the time to confine my consideration to the step-mitered and to the tongue-and-groove cleats. While you may not have said anything on the record about my not conferring with anybody else during the adjournment, I naturally concluded that your insistence on my answering the question at that time before adjournment was due to the fact that you were afraid I would confer with somebody else and get some information that way, and what you wanted to find out was what I knew about it, and not what somebody else knew about it.

By Mr. Janney: Without prolonging this discussion by the witness I invite the court to read again the remarks of counsel which followed X Q. 171 (ante, page 489).

X Q. 184. Then up to the time of adjournment last Saturday the only possible assembly for practicing your first method described in answer X Q. 150, and which you were then willing to commit yourself to, was the one shown in Plaintiffs' Cross-Exhibit X-1?

A. I think it was the only one that I had considered carefully enough in my own mind to submit it to you.

X Q. 185. Then when you answered X Q. 167, which asked for the sketch of Plaintiffs' Cross-Exhibit X-1, and when you said "there are several possibilities, and I have sketched out one of them,"—the "several possibilities" were wholly speculative at that time, beyond the one which you sketched.

A. I would not say they were wholly speculative but I think you would be correct in saying that they were largely speculative.

X Q. 186. Following the cross-examination of last Saturday and the study which you say you have given to the matter since that time, Plaintiffs' Cross-Exhibits X-1, X-2 and X-3 represent the only possible assemblies which you are now prepared to submit as illustrating the possible [fol. 496] practice of the first method which you described in answering X Q. 150. Is that correct?

A. They are the only ones that I have seriously considered. As a matter of fact I considered the matter not more than fifteen minutes all told between the adjournment Saturday and the resumption this morning, so that I am not prepared to say that they are everything that I might figure out as a possibility.

Certainly without further study, I am not prepared to submit a sketch of any other possibility at this time. I have considered it beyond the possibilities I have referred to to employ an assembly involving tongue and groove cleats, because with the alternate preformed cleat assembly, the second pair of cleats from the front have to be pushed by the third pair of cleats from the front, and of course that would involve the tone of one cleat contacting with the groove of the other cleat to propel it, or vice versa, and I thought there was a possibility that they might telescope, as they have to do (at right angles to be sure) when the box is folded. I would want to do some experimenting to determine this possibility, and if it actually occurred, it would be necessary to put something in the nature of spacer blocks between the contacting ends to prevent their telescoping, and that was not contemplated by the particular method under consideration.

X Q. 189. Then so far as you are prepared to say at the present time, you cannot assert that defendant's full cleated blank could possibly be made by the first method you describe in answer to X Q. 150. Is that correct?

A. So far as I know there are no defendant's full cleated blanks. The defendant is engaged in the manufacture and selling of the machines and not in the making of boxes.

X Q. 190. To meet this ridiculous quibbling, I will modify my next preceding question to refer to full cleated blanks made upon defendant's machine by defendant's licensees as suggested in defendant's advertising. With this understanding please answer the question.

A. Just at present I am not prepared to say that precisely the blank manufactured by defendant's licensees as I saw it could be made by using the machines in the manner under consideration. As I recall it, however, so far as any patentable method is concerned, I do not think there would be any substantial difference, and the present litigation is not concerned with the boxes or blanks, but with the machinery and alleged methods.

[fol. 497] By Mr. Janney: The final sentence in the answer is objected to as immaterial, irrelevant, incompetent, argumentative and volunteered. This witness pretends to be on the stand as a mechanical and patent expert; and matters of patentability, which are strictly matters of legal conclusions, are wholly beyond any legitimate scope of his testimony.

I give notice that I shall move to strike out the sentence objected to and all similar remarks by the witness. It is objectionable and improper, as the witness well knows, for him to attempt the argumentative functions of counsel.

X Q. 191. Then so far as you are prepared to say at the present time, the blank manufactured by defendant's licensees on defendant's machines could not be made upon the old Rosback machines as disclosed in the Rosback patent, without modifying that machine by the addition of at least some mechanical elements, whether in the form of loose spacer blocks, not actually attached to the machine, or otherwise.

A. The Rosback patent 608,796 seems to show a sufficient number of cleat pushers, but they would have to be rearranged on the chains in order to get them close enough together to produce the ordinary sized box blank.

X Q. 192. In this Rosback patent you have just referred to the two pairs of pushers you mention are intended to function on separate and distinct blanks, each pair being intended to push through the machine, the parts for one rigid blank, quite independently of the other pair of pushers and with no co-operation whatever from this other pair of pushers. That accords with the disclosure of that Rosback patent, does it not?

A. There are more than "two pairs of pushers" in this Rosback patent, but it is a fact that each pair is intended to function as described in your question.

X Q. 193. Do you find in any Rosback or other kindred patent any teaching to the effect that two of these pairs of cleat pushers could be made to co-operate in the positioning of the parts of a single blank?

A. I do not think it is likely.

X Q. 194. Then you do not find any such teaching in any Rosback or kindred patent?

A. I have not had time to read these patents carefully since my testimony was given in the Gibbons litigation so could not say with absolute certainty, without stopping to reread them. I have at this time no recollection of any [fol. 498] such teaching in them and would not expect to find any.

As at present advised, I think it would not be possible to make the blanks manufactured by defendant's licensees on the old Rosback machine except by making some modification of that machine, not within the teachings of the Rosback patent, to adapt the machine to the use of preformed cleats of the kind employed by defendant's licensees with the separate side section. The use of preformed cleats I do not believe is contemplated by the disclosure of any of the so-called Rosback patents.

X Q. 196. How do you reconcile your next preceding answer with the unequivocal statement you have made in answering X Q. 149 as follows:

"It is entirely possible to make the blanks manufactured by defendant's licensees on the old Rosback machines without changing them, and by the use of preformed cleats and separate side sections."

A. The addition of or rather the use of the removable cleat pushers pointed out in my answer to X Q. 150 would take care of that, as I see it, and make my answer to X Q. 149 accurate. If you will read that complete answer you will see that I differentiated between the disclosure of the Rosback machine and the different manner in which it might be used.

X Q. 197. Then you wish to be understood as saying that the use of removable cleat spacers to space apart the cleats, although they would be additional mechanical elements functioning to position and push the cleats mechanically, would not constitute any change in the Rosback machine, as referred to in your answer to X Q. 149. Is that correct?

A. I do not see that their use would involve any change in the machine, as they would not be a part of the machine proper. You might call them additional elements used with the machine, however.

X Q. 198. And, as you are at present advised, it would require these additional mechanical elements "used with

the machine'' and to co-operate mechanically with the other elements already on the machine, to equip the old Rosback machine for making the blanks made by defendant's licensee upon defendant's machine. Is that correct?

A. It may be. As at present advised, I do not see how the exact box blank as manufactured by Maxwell Bros. Company using two precleated blanks could be made on the [fol. 499] old Rosback machine without using those removable blocks, but it is possible that I am not as well informed on that point as I might be.

As at present advised, it would seem true also that it would require these additional mechanical elements ''used with the machine'' and to co-operate with the other elements already on the machine, to equip the old Rosback machine for making any kind of an eight-cleated blank in the making of which at least one pair of loose cleats is to be employed for the first, second or third section of the blank and is to have its rear cleat ends spaced from the advance end to the following cleat.

X Q. 200. Please point out exactly those mechanical elements in defendant's machine which differentiate it from the old Rosback machine and enable it to make an eight-cleated blank which cannot be made on the old Rosback machine without the addition of such mechanical elements as you have referred to.

A. I suppose you have reference to the second pair of cleat pushers for each blank employed in the defendant's machine.

X Q. 201. It is not I who refer to anything. I am asking you a question to be answered upon your own authority. I repeat the question.

A. I am not sure that it could properly be said that the second pair of cleat pushers would be an addition to the old Rosback machine since it would be possible to readjust those already on it so that they would have the proper relationship. It seems to me it is a question of the adjustment of the cleat pushers relative to each other rather than the number employed which constitutes the distinction inquired about between defendant's machine and the old Rosback machine.

X Q. 202. Then it is the co-operative relationship of the cleat pushers on defendant's machine which differentiates it from the old Rosback machine and enables defendant's

machine to produce the eight-cleated blank which cannot be made upon the old Rosback machine without additional elements or a modification of the machine. Is that your view?

A. Not quite. It seems to me that the bringing of the Rosback cleat pushers into the proper relationship would be a matter of adjustment rather than modification.

X Q. 203. With that explanation, you answer X Q. 202 in the affirmative, do you?

A. Yes.

X Q. 204. This Rosback machine that you refer to having two or more pairs of cleat pushers, is in fact capable of [fol. 500] pushing a succession of pairs of cleat strips through the machine, is it not?

A. As I understand the question, it is.

X Q. 205. In so far as concerns the teachings of the Rosback and kindred patents, there is no disclosure whatever that any two pair of those Rosback cleat pushers were ever brought or intended to be brought into any co-operative relationship which would enable them to co-act with reference to parts of a single blank. Is that true?

A. So far as I know, it is.

X Q. 206. And because defendant's machine has two pairs of cleat pushers in co-operative relationship enabling them to co-act with reference to parts of a single blank, therefore defendant's machine is capable of producing the blanks manufactured by defendant's licensees, which blanks could not have been made on the old Rosback machine unchanged. Is that correct?

A. I would say more accurately that it was because the cleat pushers in defendant's machine are adjusted in that co-operative relationship it can do the work that it does, and that the old Rosback machine could not do the same work because its cleat pushers were not so adjusted. It is a fact that in defendant's machine the cleat pushers and sheet spacers are all adjustably mounted on the chains.

X Q. 207. Defendant's machine has mechanical elements adjusted in co-operative relationship to position aligned cleats for the same blank in co-operative foldable relationship; the Rosback blank did not have mechanical elements in that co-operative relationship. Hence (to quote part of your answer to X Q. 206) "the old Rosback machine could

not do the same work" as defendant's machine. Is that correct?

A. It is, provided the cleat pushers on the old Rosback machine are not readjusted.

X Q. 208. That is to say—provided the cleat pushers of the old Rosback machine are not readjusted in some manner which is not at all disclosed nor suggested in any Rosback or Kindred patent. That is correct, is it not?

A. I think so.

X Q. 209. In what patent do you find the disclosure of earliest date of mechanical elements adjusted in co-operative relationship to position aligned cleats for the same blank in co-operative foldable relationship? Is not the Inwood & Lavenberg workholder patent in suit, with its filing date of October 14, 1904, the earliest disclosure of this subject-matter?

A. That statement is rather broad. So far as foldable [fol. 501] relationship is concerned it might be said that the cleats of the Fuller patent 694,467 had that possibility, but the fact remains that there was no intention of folding them, so that strictly speaking, I think the answer would be in the affirmative.

X Q. 210. It is true, is it not, that it would require additional mechanical elements "used with the machine," and to co-operate mechanically with the other elements already on the machine, to equip the old Rosback machine for making either the so-called alternate cleated blank or the so-called eight-cleated blank made by defendant's licensees on defendant's machine?

A. I think I have already said that in one of the Rosback patents is is a matter of the adjustment or rather the readjustment of the cleat pushers already on the machine instead of adding additional cleat pushers.

X Q. 211. With that explanation, you answer my question in the affirmative?

A. Understanding that the explanation virtually modifies the question, as indicated, I do.

X Q. 212. Could defendant's alternate cleated blank—or, to anticipate your quibbling, could the alternate cleated blank made by defendant's licensees be made upon the old Rosback machine without the use of additional mechanical elements or else the readjustment of Rosback's cleat pusher

into a relationship which was not at all disclosed or taught in any Rosback or kindred patents?

A. Understanding that you are referring to the precise blanks manufactured by Maxwell Brothers Company on the machines furnished by defendant, I will answer the question negatively.

As at present advised, I do not know of any alternate cleated blank made on defendant's machines by any of defendant's licensees which could be made upon the old Rosback machine without the use of additional mechanical elements or else the readjustment of Rosback's cleat pushers into a relationship not disclosed or taught in any Rosback or kindred patent.

X Q. 214. And the reason why defendant's machine is capable of making the alternate cleated blank, while the old Rosback machine unchanged could not do that work, is this: That defendant's machine has mechanical devices in co-operative relationship enabling them to position two cleats for a single blank in line so that when attached together by wire and folded those cleats will constitute parts of the same box, while the unchanged Rosback machine had no mechanical devices in such co-operative relationship. Is that correct?

[fol. 502] A. It is, with the explanation that it seems to me that it might be possible to produce the alternate cleated blank with the old Rosback machine provided that what might be considered as removable spacer bars were employed, but it would then be a question as to whether or not they were really a part of the machine.

X Q. 215. When you refer to removable spacer bars, just what have you in mind as to their construction and relationship to have the two aligned cleats at one side of the alternate cleated blank?

A. They would be in line with the cleats beneath the side pieces that did not have the cleats, and in that case it seems as if they would have to be of metal so as to act as clincher blocks in passing beneath the staplers.

X Q. 216. Would these removable blocks be approximately the dimensions and shape in cross-section of one of the cleats?

A. Yes.

X Q. 217. And how long would the removable block be?

A. That would depend upon the distance between the

adjacent ends of the cleats that were in alinement, as they would have to abut those adjacent ends.

X Q. 218. Then in making the alternate cleated blank on the old Rosback machine in the manner you have discussed, the advance cleat of the blank would have its rear end positioned against the front end of the metal spacer block; and the rear end of the metal spacer block would be positioned against the advance end of the second cleat of the blank. Is that correct?

A. Understanding that by spacer block you mean what I think I originally referred to as a spacer bar, it would be.

X Q. 219. And the length of this spacer bar between the rear end of the advance cleat and the front end of the following cleat, would be appropriate to the side of the box which was intended to intervene between the two cleats. Is that correct?

A. Yes.

X Q. 220. Would this method of making the alternate cleated blank, using the old Rosback machine, supplemented by these hypothetical spacing bars, be the substantial equivalent of the method employed by defendant's licensees for making the alternate cleated blank upon defendant's machine?

A. Possibly. I would want to see it tried out before I would say for a certainty.

X Q. 221. Have you no definite opinion on the subject?

[fol. 503] A. Theoretically it looks possible, but I have sometimes found that theory and practice are very different.

X Q. 222. I asked you whether the two methods referred to were equivalent or not. Please assume that the perfect alternate cleated blank could be made on the old Rosback machine supplemented by the spacer bars you have described. Would that method be the equivalent of the alternate cleat blank method practiced upon defendant's machine by defendant's licensees?

A. Speaking broadly, it would seem so.

Broadly speaking, and assuming that it works as well, it would seem that the Rosback machine supplemented by the cleat spacing bars which I have described would be the mechanical equivalent of defendant's machine.

X Q. 224. And it would be fair, would it not, to describe the old Rosback machine supplemented by the cleat spacing

bar as having means to space endwise apart one cleat for a given side of the box and another cleat for a non-adjacent side of the box, a distance appropriate to dimensions of a

A. While it seems awkwardly phrased, as I understand it, it would be correct.

X Q. 225. Suppose this hypothetical spacer bar were fixed in some manner to the feed chain of the old Rosback machine. Would that affect the equivalency between the Rosback machine so supplemented and defendant's machine?

A. Not if it worked.

X Q. 226. Suppose this hypothetical spacer bar had each of its ends secured to the chain of the old Rosback machine and the intermediate length of the bar were cut entirely away, leaving only a block secured to the chain and positioned at the rear of the advance cleat, and another block secured to the chain and positioned at the front end of the following cleat—would that affect the equivalency of the Rosback machine so supplemented and defendant's machine?

A. As I understand your hypothetical question, it seems that it would not.

X Q. 227. That is to say, the change that I suggest in my next preceding question for modifying the hypothetical spacer bar which was suggested by you, would not impair the equivalency of the modified Rosback machine and defendant's machine. Is that correct?

A. I am afraid that I have been overlooking one possible function of those spacer bars. As I recall it, I originally figured that they would have to function to take care of the stapling of the wires to the uncleated blanks, and if the cen- [fol. 504] tral portion of these bars was removed, they could not so function.

If some other means for clinching the staples were supplied to co-operate with the uncleated sections, that would cure the difficulty I have in mind, but there would be nothing of the sort in the Rosback machine. I think that if other clinching means were provided, then so far as concerns their cleat positioning function alone, the two blocks secured to the chain would be the equivalent of my hypothetical bar secured to the chain.

X Q. 230. And again assuming the provision of some other clinching means which might be selected either in-

ventively or by mechanical skill, then the old Rosback machine with the two blocks secured to the chain as I have described them would be the substantial equivalent of defendant's machine. Is that your theory?

A. As I understand your question, it seems that it might be so far as production of alternate cleated blanks is concerned.

X Q. 231. Where would equivalency fail between the hypothetical modified Rosback machine and defendant's machine as it is used for making the alternate cleated blank?

A. I don't know that it would. I would have to try it out to see.

X Q. 232. And in the hypothetical modified Rosback machine, as I understand your concept of it, the advance cleat in each row would be positioned with its rear end against one of the hypothetical blocks; and the second cleat in each row would be positioned with its front end against the rear hypothetical block and its rear end against one of the cleat pushers actually disclosed in the Rosback machine. Is that correct?

A. As I understand your hypothetical construction, it is.

X Q. 233. And you have already said that the location of one of the hypothetical blocks in contact with the advance end of the second cleat would not impair the equivalency of the machine so modified with the defendant's machine. Is that correct?

A. It seems so.

X Q. 234. Now suppose we assume another block secured to the Rosback feed chain and positioned to contact with the advance end of the first cleat. Would that impair the equivalency of the hypothetical modified Rosback machine and defendant's machine?

A. Probably not so far as the work done is concerned. It [fol. 505] might make the positioning of the blanks in feeding the machine a somewhat different task.

X Q. 235. But after the materials for the blank had been mounted in the machine in each case, then the hypothetical machine and the defendant's machine would be mechanically and functionally equivalent. Is that correct?

A. Always remembering that your modification and hypothetical construction provides for the clinching of the staples on the uncleated blanks, it seems that it would be.

X Q. 236. Then the fact that each of the two cleats in the line is confined between a block at its front end and a block at its rear end, would not impair the equivalency of the hypothetical machine and defendant's machine—assuming what you have just suggested as to some other provision for clinching the staples on the uncleated blank. Is that correct?

A. Disregarding the matter of clinching of the staples on the uncleated blanks, I would say that it seems so.

X Q. 237. Now the hypothetical machine dealt with in my last preceding question would have on it four blocks in each cleat row, all the blocks being fastened to the Rosback chain, and the rearmost block being the normal cleat pusher actually disclosed in the Rosback patent. That is your understanding, is it not?

A. I was under the impression that there were five blocks, but it may be that your series of questions would work out with only four. It is probably immaterial anyway.

X Q. 238. From our informal conversation off the record, I understand that you intended in your original hypothesis to have two of the long cleat spacing bars in each cleat row. Is that correct?

A. Yes.

X Q. 239. So that if the two bars were of the same length and had their intermediate lengths cut away and their remaining end blocks secured to the Rosback chain, then there would be the two separated blocks remaining from the advance spacing bar; the two separated blocks remaining from the second spacing bar; and at the rear of the assembly would be the original Rosback pusher which alone of these blocks was actually disclosed in the Rosback patent. That would make five blocks in all. Is that what you had in mind when you said you had supposed there would be five blocks instead of four?

A. Yes.

Provided you take care of clinching the staples on the uncleated sections, it would seem that the machine modified in [fol. 506] this way would still be the mechanical functional equivalent of defendant's machine as used for making the alternate cleated blank.

X Q. 241. Now suppose that in each series of five blocks

the first and second were so dimensioned and positioned that they would receive between them a cleat for the first section of the blank; and the third and fourth blocks were so dimensioned and positioned that they would receive between them a cleat for the third section of the blank—it being understood that the second and third blocks in the series had their adjacent faces relatively positioned as assumed in our earlier hypothesis to suit the cleat for the second section, and assuming the same with reference to the fourth and fifth block as regards the cleat for the fourth section. Would that hypothetical machine still remain a substantial equivalent of defendant's machine?

A. As is usually the case where hypothetical constructions are based on mere verbal descriptions without any illustrations, I find I have been overlooking in a long series of questions the matter of positioning the sheets. Overlooking this I have more or less admitted equivalency of a long string of structures in which I may have been totally mistaken on account of this omission. Personally I think it is a very reprehensible practice to use such hypothetical structures unsupported by any drawings. The trouble or rather one trouble is that the cross-examiner may have one structure in mind and the witness a rather different structure, and it is always possible that the court, if it reads the testimony, might very well have a third structure in mind. I think it would be fair to everybody concerned in the future if instead of permitting merely these verbal descriptions of hypothetical constructions you submitted something definite in the way of drawings.

By Mr. Janney: In view of the fact that this witness in answering X Q. 150, and volunteering something that was not called for by the question, injected into this record a statement of two wholly hypothetical methods and species of machine, upon which alone all of the subsequent hypotheses mentioned in the cross-examination have been based, it is interesting to find the witness now characterizing the use of "such hypothetical structures unsupported by any drawings" as reprehensive.

The character of this witness as it bears upon the accuracy and reliability of his theories is well indicated by the [fol. 507] following course of events which occurred during this cross-examination:

The witness first referred to "the method practiced by defendant on what is virtually an old Rosback machine as compared with the method practiced by Rosback on practically the same machine" (X Q. 148).

Second, when his reference to the defendant's practice on "virtually an old Rosback machine" was challenged (X Q. 149), he said in the course of his answer:

"It is entirely possible to make the blanks manufactured by defendant's licensee on the old Rosback machines without changing them and by the use of preformed cleats and separate side sections, and I am informed that that was done to some extent."

This unqualified statement of a hypothetical use of the old Rosback machine, coupled with the witness' statement as to his information that the machine had been so used, was calculated to give the impression that precisely defendant's blank might have been made on the unchanged Rosback machine.

Third, the witness was asked the following question:

"X Q. 150. Please point out in any Rosback or kindred patent of the prior art 'provision for relating any two preformed cleats in line with each other and in foldable relationship.'"

Instead of answering this question and pointing out something in a prior patent as requested, or else honestly saying that he could not do so, the witness proceeded with a long answer describing two purely hypothetical methods and two hypothetical mechanisms by which it was pretended that defendant's blank could be made on the old Rosback machine.

Fourth, having given the impression that defendant's blank could be made on the old Rosback machine and having cited two hypothetical ways in which that could be done, the witness was challenged to make a sketch of one such way. He then produced Plaintiffs' Cross-Exhibit X-1 which does not show defendant's blank but shows a wholly impractical blank as plaintiffs will demonstrate at the proper time. Then after being pressed to produce other sketches to illustrate his described and volunteered hypothetical [fol. 508] methods, the witness produced two more sketches

which bear even less resemblance than did the first to defendant's blank.

Fifth, the witness finally is forced to admit that defendant's blank could not be made in accordance with his first volunteered hypothetical method described in his answer to X Q. 150; then he falls back upon the second hypothetical method described in the same answer and suggesting the employment of spacer blocks interposed between cleat ends.

The subsequent course of the cross-examination had for its purpose to test the reliability of this witness' assertions as to that second hypothetical method and apparatus which he had volunteered.

All of the questions propounded have suggested no more than slight and simple modification of the witness' original and volunteered hypothesis; and until confronted by the last question (X Q. 241) the witness has manifested no inability to understand clearly the suggestions made by cross-examining counsel as to changes superposed upon the witness' own hypothesis.

This last question (X Q. 241) to which all the preceding questions on the subject have been leading logically and inevitably, is evidently embarrassing to the witness and now for the first time he begins to balk; and his pretended excuse, referring to "the matter of positioning the sheets" affords no excuse whatever. As indicated in all three of the witness' sketches Plaintiffs' Cross-Exhibits X-1, X-2 and X-3, the side sheets in these embodiments of the witness' hypotheses are all simply laid edge to edge over the cleats and presumably with the rearmost edge of the series in contact with the original cleat pusher disclosed in the Rosback machine.

The witness is at perfect liberty to offer any sketches which he may wish to make to illustrate any of his statements; and I agree with him that the court would have been saved from danger of being misled by the witness' statements if he himself had used drawings in answering X Q. 150 instead of indulging in hypothetical generalization, some of which now appears to be clearly untenable and ultimately developed into an embarrassment for witness.

I want the witness to answer my question X Q. 241. If he needs to make a sketch to enable him to do so, then he should make a sketch. If there is any reason why the posi-

tioning of the sheets in the manner shown in the three [fol. 509] sketches the witness has already made, should affect his answer to the question, he should point it out, and there is no reason why he should not illustrate it in the sketch if he so desires. In other words, if the witness wishes to avoid further reprehensible practice which he inaugurated, he can do so by making his replies perfectly definite by means of sketches."

X Q. 242. Now suppose that in each series of five blocks the first and second were so dimensioned and positioned that they would receive between them a cleat for the first section of the blank; and the third and fourth blocks were so dimensioned and positioned that they would receive between them a cleat for the third section of the blank—it being understood that the second and third blocks in the series had their adjacent faces relatively positioned as assumed in our earlier hypothesis to suit the cleat for the second section, and assuming the same with reference to the fourth and fifth block as regards the cleat for the fourth section; would that hypothetical machine still remain a substantial equivalent of defendant's machine?

By Mr. Cox: An opportunity will be afforded plaintiff's counsel for writing a brief, but this is not the proper time for writing it, nor is it proper for him to write it into defendant's record at defendant's expense.

As to hypothetical questions and drawings, when plaintiff's counsel wanted to understand the witness he asked for sketches illustrating the witness' answer, and by the same token when the witness requires sketches to understand plaintiffs' hypothetical questions he is entitled to ask for and receive them or else decline to answer the question.

A. I don't know. Your disclosure is not sufficient to enable me to reach a conclusion. You have, I believe, said that the side sheets are to be brought in contact, and if this is so, I would say that it is not.

X Q. 243. Why not?

A. Because defendant's machine uses side spacing ribs which would produce a different result from the device in which no such side spacing ribs were employed.

X Q. 244. Do you then consider that the exact degree of separation of the adjacent edges of the side pieces in the

blank before it is folded into box form is material as re- [fol. 510] gards the equivalency of the blanks as products of a machine?

A. It may be. I should also imagine that with your hypothetical construction, I have no means of knowing how far the edge of each sheet extends over the ends of the cleats associated with it, and this is also a factor in the production of these specific boxes.

X Q. 245. Leaving the other phases of this inquiry to be dealt with tomorrow, please answer the substance of X Q. 242 with the following substituted for the last clause thereof: Would that hypothetical machine still remain a substantial equivalent of defendant's machine insofar as concerns the relative positioning of cleats alone and disregarding the side sheets?

A. I don't know. If you will furnish me an accurate dra ing of what you have in mind I will compare it with defendant's structure and endeavor to answer the question.

X Q. 246. In making your sketches, Plaintiffs' Cross-Exhibits X-1, X-2 and X-3, what dimensions for the parts of the blank had you in mind? I refer particularly to the thickness of the side sheets and the widths of the cleats and the dimensions of the miter steps in Cross-Exhibit X-1 and of the steps at the cleat ends in Cross-Exhibit X-3.

A. The drawings are not to scale. They were intended to be diagrammatic. So far as any particular dimensions are concerned, I had in mind merely the ordinary dimensions of cleats and veneers used in making these boxes.

I did not pay any particular attention to the thickness of side sheets employed by defendant's licensees. My recollection is that it would be somewhere around 3/16 of an inch.

X Q. 248. And to said side sheets 3/16" thick, what would be the dimensions of the miter steps shown in Cross-Exhibit X-1?

A. The cross-exhibit illustrates roughly each step as having the same dimensions or thickness as the thickness of the veneer.

X Q. 249. That is to say, in Cross-Exhibit X-1, assuming side sheets 3/16" thick, each miter step would be 3/16" square; is that correct?

A. I don't think I would phrase it just that way, but each step would be 3/16 of an inch high and 3/16 of an inch wide.

X Q. 250. And if the side sheets were $\frac{1}{4}$" thick, each [fol. 511] miter step would be $\frac{1}{4}$" wide and $\frac{1}{4}$" high; is that correct?

A. Assuming that the same relative dimensions mentioned were retained, it would be.

X Q. 251. That would be the normal practice, would it not, in the use of step-mitered cleats?

A. I would not say for sure, as I did not give much attention to either the thickness of the sheets or the relative dimensions of the cleats. In making these diagrammatic illustrations, I had in mind the diagrammatic drawings used in connection with the deposition I gave in the Gibbons case, and found opposite page 23 of the printed copy of defendant's record.

X Q. 252. My X Q. 251 asked you whether the practice described in X Q. 250 and your answer thereto would be normal practice. If it would be normal practice, please say so; if you don't know, please say so.

A. Rather than take a chance on it, I will say that I don't know. I certainly don't want to give the court any misinformation.

X Q. 253. Do you know that it is normal practice in making wirebound boxes of the kinds in controversy to use sometimes quarter-inch thick side sheets?

A. I would think that that is heavier than the normal, or, rather, the average, but see no reason why occasions could not arise where they want extra strong boxes of the wirebound type. So far as actual knowledge is concerned, I do not recall having seen side sheets that thick.

X Q. 254. And you have never seen 5/16" thick side sheets used in making these wirebound boxes?

A. No.

X Q. 255. Would the methods and assemblies which you have shown in Cross-Exhibits X-1, X-2 and X-3 be practical if side sheets 3/16" thick were used?

A. Practical is a somewhat relative word. So far as I know, the methods illustrated in those three cross-exhibits never have been used nor ever will be used, in view of the fact that if you want to make boxes in that general man-

ner upon the old Rosback machines, the natural thing to do would be to precleat at least three, or possibly all four, of the side pieces, and if that was done, all the difficulties arising from the structures produced by only alternate precleating of the side pieces, as shown in the cross-exhibits, would disappear. If it were impossible to make any other boxes than those shown in the cross-exhibits, they might possibly be considered practical. As it is, I do not think they would be.

X Q. 256. Would the blanks be practicable wirebound [fol. 512] box blanks, if the respective assemblies shown in Cross-Exhibits X-1, X-2 and X-3 were wired together in the usual manner?

A. If the wire was loose enough, and as loose as I have frequently seen it in these boxes, I think it would be practicable, but it would not look so well as the ordinary box.

X Q. 257. How loose would the wire have to be?

A. At the corner where the ends of the cleats are shown as abutting in Cross-Exhibit No. 1, the wire would have to be loose enough to permit it to bend around the corner without cutting into the box more deeply than can be actually done. As I recall it, there is considerable curve in each wire between adjacent staples, and taking out this curve furnishes considerable leeway in what would otherwise partake of the character of stretching the wire.

X Q. 258. As you have observed this alleged curve in the wire between staples, what would be the height of that curve measured upon a perpendicular erected at the center of the chord of the curve?

A. I have not examined any of these blanks with that feature of the looseness of the wire in mind since I gave my testimony in the Gibbons case. I remember distinctly that there was more of this curve and the boxes were looser at the corners than I expected to find from my previous theoretical consideration of the matter. At this time, any statement I gave you would be in the nature of a guess as to my recollection, and I do not care to give that unless you insist.

X Q. 259. If you don't know the dimension of the alleged curve referred to in X Q 258, perhaps you can say to what extent the distance between two adjacent staples attaching

the wire at opposite sides of a box corner could be moved apart before beginning to stretch the wire.

A. Of course, the wire is not actually stretched, but when the box is folded the curve is virtually taken out of the wire except, of course, the sharp curve that is produced right at the corner. There is a sort of a leverage action about this folding of the box at the corners that makes the taking out of the original curve fairly certain. As to the distance inquired about in the question, I do not know.

X Q. 260. Then you don't know whether the alleged curve in the wire which you have referred to, would allow sufficient slack in the wire to permit the folding of a blank assembled like that shown in Plaintiffs' Cross-Exhibit X-1, at the point in the middle of the blank where the cleat ends about?

[fol. 513] A. My knowledge of the actual practice on this particular point goes back too far to enable me to say with certainty just what the facts are. There is sufficient curve to enable the ordinary blank to be folded without difficulty, and the wires could be put on more loosely if found necessary.

I would have to have the exact feeding mechanism which controls the application of the wire to the blank before me, before I could tell just how to adjust it to put the wires on more loosely if found necessary.

X Q. 263. And what does that consist of in defendant's machine?

A. I did not investigate that particular part of the machine, as the present controversy, so far as details are concerned, relates to the positioning of the cleats and side pieces and feeding them to the stapling mechanism.

X Q. 264. Is that the best description you can give of the means on defendant's machine for feeding the binding wire onto the blank?

A. It is the best I will give you, because I do not want to take a chance on giving the court misinformation.

X Q. 265. You have volunteered to give the court the alleged information, unqualified in your statement of it, that "the wires could be put on more loosely if found necessary." If your protestation is sincere that you "do not want to take a chance on giving the court misinformation," I should suppose that you would have in mind some fairly

definite idea of the manner in which the alleged result could be brought about. If you have anything of the sort in mind, please describe it; if you have not, please say so.

A. I am not prepared to say whether defendant's machine as it exists has means for regulating the looseness of the wire. If it has not, and it were found necessary to do so, it would be, I think, a comparatively simple matter to add something that would take care of that. A method that occurs to me would be to have an arm thrust beneath the wire after each staple was driven and raised up so as to increase the curve of the wire before the next staple was driven. Another possibility would be to furnish a positive feed for the wire, but I don't think that is employed.

I have never known nor heard of the use on any wire-bound box-blank machine of either of the expedients I have just suggested. I was asked about what could be done, not what actually is done. The sketches, Plaintiffs' Cross-Exhibits X-1, X-2 and X-3, are not exactly supposed to show my idea of what could be done with the old Ros- [fol. 514] back machine without change. They are supposed to show what could be done with the old Rosback machine without change by using alternate precleated side pieces in the machine. I do not think anybody would make the box this way, as if they went that far they would be pretty certain to precleat all four side pieces, which would remove all the difficulties which you think exist in connection with Cross-Exhibits Nos. 1, 2 and 3.

XQ. 268. What are "all the difficulties which I think exist" in connection with Cross-Exhibits Nos. 1, 2 and 3?

A. How should I know what you think? I should judge from your cross-examination this morning that you figured it would be difficult to fold the corner in Cross-Exhibit No. 1 where the ends of the adjacent cleat sections actually abut each other.

XQ. 269. Then why do you risk misinforming the court by making the sweeping statement that your hypothetical use of four precleated sections (which "reprehensibly," as you said yesterday, you have refrained from illustrating by sketch) would "remove all the difficulties which I think exist in connection with Cross-Exhibits X-1, X-2 and X-3"?

A. Possibly because I though that what you might think was utterly immaterial, and that the court could not in any way be damaged thereby.

X Q. 270. Then you are willing to risk misinforming the court if, in your estimation, no damake is likely to ensue?

A. What I was trying to get at was that I do not think that what you may think about the particular matter in controversy is of any importance to the court. You are paid to advocate the case, and I take it you are doing it to the best of your ability, a fact which the court understands.

Never having seen the actual machine, I do not know whether the binding wires, as applied on the old Rosback machine, would be loose enough over the box corners to permit folding at its middle point of the blank made with the assembly shown on Plaintiffs' Cross-Exhibit X-1. Not knowing the actual Rosback machine itself, I could not say certainly whether the blank made on the old Rosback machine with the assembly shown on Cross-Exhibit X-1 could be folded or not at its center joint. It seems probable that it could be folded, but I think it would be difficult. I am rather doubtful about whether the blank made with the assembly shown in Plaintiffs' Cross-Exhibit X-3 could be folded practically, if that blank were made on the old [fol. 515] Rosback machine. It represents on all four corners the difficulty which arises on the one corner in Cross-Exhibit No. 1.

X Q. 274. Do you still insist that the method represented in Cross-Exhibit X-2 would be the equivalent of defendant's method, and that the blank would be the equivalent of defendant's blank or the blank made by defendant's licensees?

A. I do not recall without looking it up just what I said on this point. I will, however, say that, broadly speaking and considering it as a method, I should say that it was the substantial equivalent. So far as the blank itself is concerned, it obviously is not as practical, and certainly would not be the full mechanical equivalent.

X Q. 275. How about the blanks represented by the assemblies shown in Plaintiffs' Cross-Exhibits X-1 and X-2. Would they be the full mechanical equivalents of the blank made by defendant's licensees on defendant's machines?

A. As I recall it, defendant's licensees mainly use the tongue and groove cleats, and I would not consider these mitered or step-mitered cleats to be the full mechanical equivalent of tongue and groove cleats. The Cross-Exhibit 1 presents difficulty at the middle joint, as you have already pointed out, and for that reason it would not be the full mechanical equivalent of the defendant's blanks. It does not seem to me that there would be difficulty about folding Cross-Exhibit 2, but the edges of the sheets would not overlap, and for that reason would not be the full mechanical equivalent of a blank where the folded edges do overlap.

So far as I have illustrated possible uses of the old Rosback machine without change in Plaintiffs' Cross-Exhibits X-1, X-2 and X-3, I have not illustrated any practice which would produce the full mechanical equivalent of the blanks made on defendant's machine, but I want to call your attention to the fact that the same blank as made by defendant's licensees on defendant's machines can be made on the old Rosback machine by precleating all four side pieces or by using the loose spacer blocks, which were not used with the old Rosback machine. I could not say when this idea that the blank made on defendant's machines could be made on the old Rosback machine by precleating all four side pieces first occurred to me, but the first time I made any use of it in connection with this cross-examination was this morning. It was a fact that I had forgotten and overlooked. I would not say that I did not have that method in mind when I was testifying Saturday morning and Friday, but I cer- [fol. 516] tainly wasn't making any use of it. I think I can safely say that when I was testifying last Friday and Saturday I was not fully conscious that the blank made by defendant's licensees could be produced on the old Rosback machine, using precleated sheets for all four sections, as I do not seem to have considered the possibility at that time. It is not correct that when I was testifying on Friday and Saturday the only methods and Blanks that I then considered as being producible upon the old Rosback machine unchanged, using the preformed cleats and separate side sheets, were those illustrated in Cross-Exhibits X-1, X-2 and X-3, which I now say would not constitute blanks which are the full mechanical equivalent of blanks made on defendant's machine. I had in mind the possi-

bility of using the loose cleat pushers or spacer blocks—whatever you want to call them—on the old Rosback machine, and I knew that there was some other way of doing it, but I did not have enough precleated side sheets in mind.

X-Q. 282. Then, when you were testifying on Friday and Saturday, what assembly of cleats and sheets did you have in mind when you testified to the information you had received that Rosback himself had to some extent used the old Rosback machine for making blanks from preformed side sheets?

A. The same things that are shown in the completed Rosback box except that the veneer was cut through at the corners.

X Q. 283. And you have in mind that you had been informed that Rosback had to some extent made that blank without any change in the old Rosback machine?

A. As I understand your question, that is so.

X Q. 284. And by that you mean that you had been informed that Rosback had used the old Rosback machine and had also used in conjunction therewith some sort of spacer blocks for separating the cleats at their ends; is that correct?

A. I do not recall whether in the information stated they did it by precleating the side pieces or by using the loose spacer blocks.

X Q. 285. When you first referred to this information of yours as to Rosback, what had you in mind as to the way in which Rosback had spaced his cleat ends apart?

A. I had in mind the information as far as it went. I am not sure that the information stated which method Rosback used, or whether he used both.

X Q. 286. What is the entire sum of the information you say you received regarding Rosback's alleged making of [fol. 517] blanks on the old Rosback machine, using preformed cleats and separate side sheets?

A. I do not recall anything more than I have already told you this morning. I believe I do recall that I was informed that Rosback was now a very old man, and would scarcely be considered a good witness on that account.

Mr. Arthur F. Durand, a patent lawyer having an office in Chicago, was my informant as to these alleged matters

about Rosback. I received that information from Mr. Durand some time last week after the cross-examination began, probably Thursday or Friday night, I don't recall which.

X Q. 290. Did Durand tell you whether or not the blanks alleged to have been made by Rosback with the preformed cleats, were the step-mitered cleat blanks?

By Mr. Cox: At the time the statements were originally made by the witness, plaintiffs' counsel objected that they were hearsay, and he was correct and justified in making the objection. Hearsay evidence is not admissible, and the fact that the witness may have inadvertently introduced hearsay is no reason for wasting a lot of time on this record. Defendant's counsel challenges plaintiffs' counsel to make the statement that he believes an answer to this question would be admissible.

By Mr. Janney: I will answer that question presently. First, however, I want to ask whether I am to understand that defendant's counsel offers to strike out from this witness' testimony all his statements of hearsay.

By Mr. Cox: Defendant doesn't want in this record statements that are hearsay, and if plaintiffs' counsel will point out the particular answers or parts of answers that are evidently hearsay, defendant's counsel will strike them out.

By Mr. Janney: I will defer accepting or rejecting the offer just stated until I have an opportunity to designate those statements of hearsay which should be stricken out and to find whether any further instances develop.

Answering now the challenge by defendant's counsel, I say that the witness' answers to questions about the Rosback matter have important bearing upon the credibility, reliability, good faith and genereal attitude of this witness, and are clearly admissible for that reason, although they would be inadmissible with reference to the alleged fact of [fol. 518] Rosback's practices.

For convenience in reading the record, I here repeat verbatim the still unanswered question, as follows:

X Q. 290. Did Durand tell you whether or not the blanks alleged to have been made by Rosback with the preformed cleats, were the step-mitered cleat blanks?

By Mr. Cox: It is an idle excuse for plaintiffs' counsel to pretend that he is testing the credibility of the witness

by asking him as to where he got some information as to a matter which he, plaintiffs' counsel, objected was hearsay and inadmissible. A questioning along this line is grossly improper and a mere waste of time and paper. Defendant's counsel now offers to strike from the record any statement made by the witness as to what he was told that Rosback had actually done.

By Mr. Janney: This offer comes too late to avoid the effect of this testimony as demonstrating the attitude and state of mind of this witness. The witness is well aware that statements of hearsay are inadmissible. He has been testifying as a patent expert for many years. Nevertheless, and evidently with the idea of coloring his testimony, he injected the hearsay about Rosback voluntarily. At the time the witness did so, defendant's counsel seemed entirely content to let the improper testimony stand, and it has stood in the record for two or three days. It is only now, when further testimony on the subject may be leading the witness toward an embarrassing situation, that defendant's counsel for the first time offers to eliminate the original statement of hearsay, and thereby to undermine the present line of examination. For the present at least, and without waiving objection to the witness' hearsay statement, I reject the offer made by defendant's counsel.

By Mr. Cox: You cannot reject without waiving. Do you or don't you wish that stricken from the record—the statement of what the witness said he had heard that Rosback had done?

By Mr. Janney: When I finish my cross-examination, I shall make up my mind what, if anything, I would like to have stricken out, and if defendant's counsel does not agree with me as to what should be stricken out, I am at liberty, of course, to apply to the court.

[fol. 519] For convenience in reading the record, I here repeat verbatim the still unanswered question, as follows:

X Q. 290. Did Durand tell you whether or not the blanks alleged to have been made by Rosback with the preformed cleats, were the step-mitered cleat blanks?

A. I do not recall. If I gathered that idea, it may have been from the fact that the Rosback patent shows step-mitered cleats.

X Q. 291. Then, when you first referred to this information about Rosback, you had in mind that the blank supposed to have been made by Rosback employed step-mitered preformed cleats, did you?

By Mr. Cox: Same objection.

A. I couldn't be sure about it. That would seem to be a natural conclusion, however.

X Q. 292. I am trying to find out as certainly as you will let me know, what you had in mind as the thing supposed to have been done by Rosback, when you first referred to your alleged information about the matter. Did you then understand that you had been informed that Rosback, using preformed cleats, had made blanks which were the full mechanical equivalents of this defendant's blank?

By Mr. Cox: To avoid repetition, it will be understood that this objection is repeated to all this line of questions.

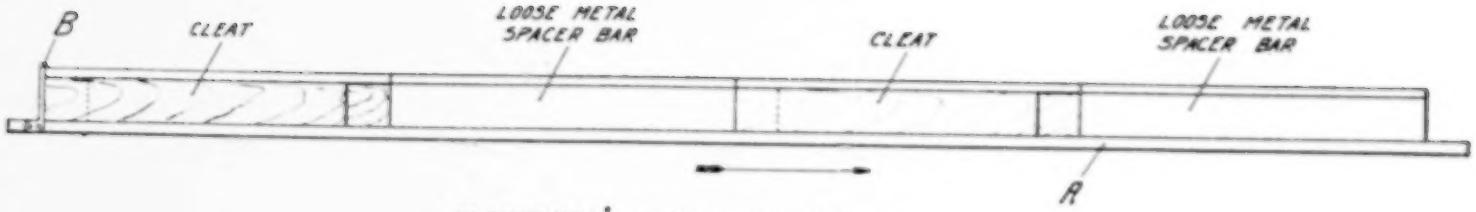
A. As I now recall it, I was informed that he had made blanks which were the full mechanical equivalent, but I cannot now recall whether I was told they were made by the precleating of the blanks or by the use of loose pusher blocks. I am free to say I did not pay a great deal of attention to what was said at the time.

X Q. 293. And the information which you have received, did not go so far as to tell you whether the cleats used by Rosback were step-mitered or not; is that correct?

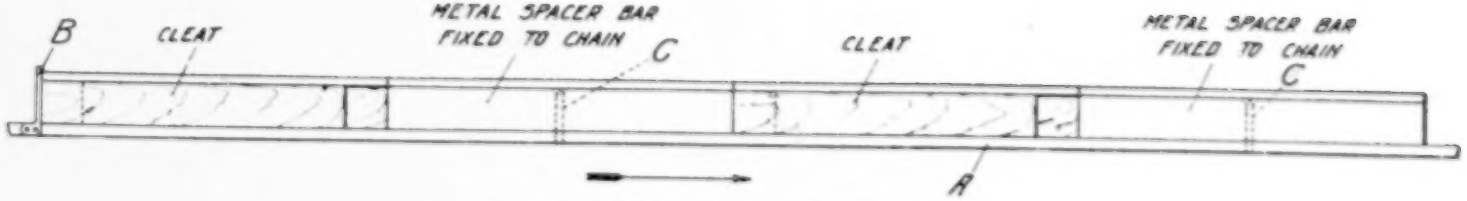
A. I do not recall whether the character of the cleats was specifically described or not.

When Mr. Durand gave me the alleged information about the Rosback practices, I do not recall whether he told me that he himself had observed those practices by Rosback. I don't think I got any idea one way or the other on that. About all I know about it is that Mr. Durand has been interested in this art for a great many years and knows a good deal of its inside history. [fol. 520]

I have said that the mechanical equivalent of defendant's blank could have been made on the old Rosback machine without change therein by precleating all four side cleats of the box. Speaking broadly, it seems the method thus practiced would be the equivalent of the method practiced by defendant's licensees on defendant's machines. The




PLAINTIFFS' CROSS EXHIBIT X-4




PLAINTIFFS' CROSS EXHIBIT X-5

only difference I note in the resulting blank would be that where defendant's licensees use the alternated precleated blank procedure, only two out of every four sides of the blank would have the unnecessary staples used in precleating the blanks, whereas with the procedure of precleating all four sides, all four of them would have these extra staples. When I used the word "unnecessary" I meant that they would be unnecessary if the precleating had not been employed.

X Q. 297. So far as you know, has defendant or any of its licensees ever practiced the blank-making method using four precleated side sheets to a blank?

A. Any evidence I could give about that would be hearsay, and I understand you object to that.

X Q. 298. I hand you a drawing marked "Plaintiffs' Cross-Exhibit X-4." Please assume that the part which I have marked "A" represents diagrammatically a feed chain of the old Rosback machine, and the part that I have marked "B" represents one of the original cleat pushers on that chain as disclosed in the Rosback patent. Note also the printed legends on this drawing and the arrow indicating the direction in which the assembly is supposed to move during the stapling operation. Does this fairly represent the assembly of alternate cleats and loose metal spacer bars which you have described in your answer to X Q. 214?

A. Understanding that everything is diagrammatic, I would say so.

Considered as a diagrammatic drawing, I would make no criticism of Cross-Exhibit X-4. As at present advised, I think this Cross-Exhibit X-4 fairly represents the arrangement which I have described in answering X Q. 215, X Q. 216, X Q. 217, X Q. 218 and X Q. 219.

(Here follows Plaintiffs' Cross-Exhibit X-5, side folio 520½)

X Q. 301. I show you another drawing marked "Plaintiffs' Cross-Exhibit X-5," in which the letters A and B are applied to the same parts as in Cross-Exhibit X-4; and the screws C shown in dotted lines simply illustrate diagram-

matically some practicable means such as would be devised by a skilled mechanic for attaching the spacer bars to the chain A. This drawing is intended to be simply diagram- [fol. 521] matic. Does this Cross-Exhibit X-5 fairly represent the arrangement which you understood to be referred to when you answered X Q. 225?

A. I think I should say in connection with this exhibit, as well as the preceding one, X-4, that, as I recall the blank made by defendant's licensees, the spacer bars would have to project a little beyond the side piece covered by them at one end in order to produce the lapped-edge box. With this exception, and of course remembering that the drawing is diagrammatic, and possibly misleading for the reason, I will answer the question affirmatively.

I don't know that this drawing is misleading in any respect. What I had in mind was this: Diagrammatic drawings necessarily omit a lot of details, some of which might become of importance in the actual working of the device illustrated diagrammatically.

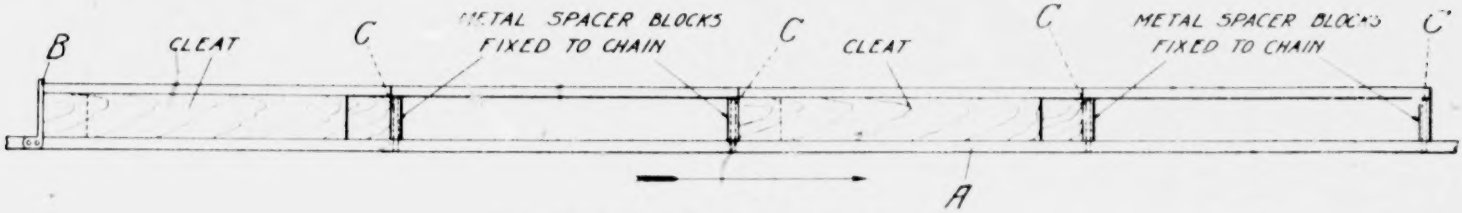
X Q. 303. With this arrangement of alternate cleated blanks indicated in Plaintiffs' Cross-Exhibit X-5, defendant's lapped-corner box could be made from that blank by simply making the cleats, which are preattached to the ends of the box, short enough to leave projecting overlap margins at opposite ends of the cleats on the first and third and uncleated sheets shown in Cross-Exhibit X-5. Is that correct?

A. As I now understand your question, it could.

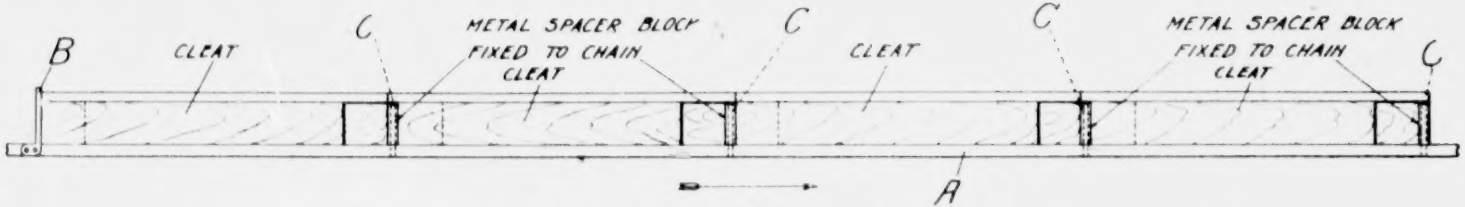
X Q. 304. And that accords, does it not, with the standard practice of defendant's licensees in making the alternate cleated blank into a box?

A. I am not prepared to say what is their standard practice. I have seen them made the way you described, by defendant's licensees.

X Q. 305. I show you another drawing marked "Plaintiffs' Cross-Exhibit X-6," upon which the letters A and B represent the same parts as in Cross-Exhibit X-4. The screws C indicate diagrammatically such mechanical expedients as a skilled mechanic might select for securing to the chain A the metal blocks shown in the drawing. Please compare this Cross-Exhibit X-6 and the Cross-Exhibit X-5 and state whether the Cross-Exhibit X-6 fairly represents,




PLAINTIFFS' CROSS EXHIBIT X-6




PLAINTIFFS' CROSS EXHIBIT X-7

diagrammatically, what you understood to be described in X Q. 226 when you answered it—assuming that some means were provided for clinching the staples driven into the uncleated first and third side sheets of the blank.

A. As I recall the situation when you asked the question 226, I did not understand that the so-called blocks were to be so narrow. Otherwise, it is as I recollect it.

[fol. 522] X Q. 306. What difference would it have made in your answer to X Q. 226 if you had understood the blocks to be as narrow as they are shown in Cross-Exhibit X-6?

A. Probably none to that particular question.

Cross-Exhibit X-6 would seem to fairly represent the hypothetical construction which I referred to in answering X Q. 232. Cross-Exhibit X-6 fairly represents the arrangement which I understood to be described in X Q. 239 when I answered it.

X Q. 309. I now show you another drawing, marked "Plaintiffs' Cross-Exhibit X-7," on which the letters A and B and C indicate the same parts as in Cross-Exhibit X-6. This drawing, Cross-Exhibit X-7, represents the modification of the old Rosback machine which I described in X Q. 242, which yesterday, in answering X Q. 245, you seemed unable to answer without having before you an accurate drawing of what I had in mind.

Now please state whether or not the machine diagrammed in Plaintiffs' Cross-Exhibit X-7 is the substantial equivalent of defendant's machine so far as concerns its cleat feeding and positioning devices?

By Mr. Janney: I note that the witness asks defendant's counsel to produce for the witness' examination copies of Plaintiffs' Exhibit Drawings Illustrating Defendant's Machine. Defendant's counsel has supplied these drawings to the witness, who is now examining them.

(Here follows Plaintiffs' Cross-Exhibit X-7, side folio 522½)

A. In one sense it is rather more than an equivalent, inasmuch as it shows four cleat pushers on each side, whereas defendant's machine employs only two. There is another difference, although I am not prepared to say that the constructions would not be substantial equivalents on account

shows the sheets pushed along by the single pusher in the rear acting through the side sheets between it and the particular side sheet that might be under consideration, whereas in defendant's machine the sheet spacers carried by the chain separate each of the side sheets and feeds each one forward by the direct thrust from the sheet spacer at its rear. Practically it may be that the devices are not equivalent for this reason, and there would be a little difference in the character of the lap at the corners, although as at present advised I do not see that this would make any substantial difference in the completed box.

X Q. 310. With this explanation, then, it is your opinion that the arrangement shown in Plaintiffs' Cross-Exhibit [fol. 523] X-7 is the substantial mechanical equivalent of the corresponding cleat feeding and positioning mechanism of defendant's machine?

A. I should say it is more than the mechanical equivalent inasmuch as it has twice as many pushers.

X Q. 311. Then you would say that the mechanism in Cross-Exhibit X-7 is the equivalent of defendant's machine plus additional spacer blocks; but the added spacer blocks do not destroy their equivalency; is that correct?

A. I question whether I should have left out the matter of the absence of the sheet spacers in this Exhibit Drawing, as the direct action of the chain through these sheet spacers on the sheets may be of practical importance. Seemingly, in one respect it is more than an equivalent and in another respect less. I have explained the differences and can only say that, so far as I know, they may be equivalents.

X Q. 312. As you have observed the practice of one of defendant's licensees in making upon defendant's machine a full-cleated blank comprising two precleated side sheets and two sheets having their cleats loose, what mechanical element of defendant's machine positions the rear end of the first pre-attached cleat in proper relation to the other parts of the blank? For instance, in Plaintiffs' Exhibit No. 12, what mechanical device on the machine defines the position of the rear end of the advance cleat 100?

A. The sheet spacers 13 and 14.

X Q. 313. And assuming that the cleats 21 and 100 are of correct length and that the cleat 100 is properly precleated to the advance side sheet, then the co-operative fold-

able relationship of the cleat 100 and the cleat 21 would be ultimately defined by the distance between the positioning device 14 and the cleat-positioner on the next following block 16, in Plaintiffs' Exhibit No. 12; is that correct?

A. If you limit it to the front edges of those elements, that would be correct.

By "elements" I refer to the positioning device mentioned in the question.

X Q. 315. And the co-operative foldable relationship of the remaining cleats 101 and 23, in the same row, as between themselves and in relation to the cleats 100 and 21, are ultimately defined collectively by the front faces, respectively, of the sheet pushers 13 and 14, of the cleat pushers on the blocks 15 and 16, of the sheet pushers 17 and 18, and of the cleat pushers on the box 19 and 20; is that correct?

[fol. 524] A. As I understand you, it is.

X Q. 316. I think you have already said that in the practices of defendant's licensees as you observed them, the side sheets were generally about 3 16" thick?

A. I did not measure them, nor did I examine the matter closely. That would be my impression, however.

X Q. 317. And generally speaking, each side sheet on defendant's machine fitted fairly snugly between the sheet spacers at its advance edge and the sheet spacers at its rear edge?

A. I do not recall that there was any substantial amount of lost motion there.

X Q. 318. Then your answer would be affirmative?

A. I don't know that I would say snugly, as that might imply that force had to be used to get the side pieces in place, whereas it is my recollection that they were simply slipped in.

As I recall it, the sheet-spacing fins on defendant's machines like the fin 12 shown in Plaintiffs' Exhibit No. 12, were about the thickness of the side sheets. If there was any difference, I would think the fins were the thinner.

X Q. 320. I think your recollection in this respect is inaccurate, and I shall later on call your attention to some actual measurements of defendant's machine made by plaintiffs' witness Roscoe Steele. For the present, however, it will take too long to locate the pertinent part of Mr. Steele's

testimony, so I shall pass to another subject for the time being.

Did you observe the operation of one of defendant's machines used for precleating individual side sheets which were subsequently used in the blank assembly shown in Plaintiffs' Exhibit No. 12?

A. Yes.

As far as I know, the workholding devices of that precleating machine are correctly illustrated diagrammatically in Plaintiff's Exhibit No. 11. I did not examine this mechanism carefully, as I did not understand that its construction and mode of operation was in controversy.

X Q. 322. Referring to Plaintiffs' Exhibit No. 11, does the defendant's machine there illustrated operate to position the pair of cleats side by side in transverse alinement and to position side material relatively to said cleats to provide an overlap margin on at least one side edge?

A. As I understand your question, it does.

Cross-examination closed.

[fol. 525] Redirect examination.

By Mr. Cox:

Nothing has occurred during my cross-examination to cause me to change the opinions expressed in the affidavit that I submitted in this cause.

It would not be necessary to change the Rosback machine to make eight-cleated blanks, if each of four side sheets were previously precleated, as in that case the engagement of the three leading side sheets by the edges of those immediately back of these sheets would enable the single pair of cleat pushers to force the entire blank through the machine. If loose spacer blocks were employed, that would not constitute a change in the machine per se, although it might be argued that there was an addition to the machine. If the structure in the one Rosback patent showing enough widely separated cleat pushers were employed, it would be necessary to readjust their position on the chain in order to make the eight-cleated blanks by pushing the cleats directly.

R. D. Q. 325. As I understand your testimony, you say that the Rosback machine had two pushers on each feed

chain, but that they were intended for different blanks; but that the cleat pushers were adjustable and that the machine would have required adjustment rather than change of construction, to have these cleat pushers operate on the same blank. Please state whether or not that is correct.

By Mr. Janney: Objected to as grossly leading. If counsel wishes to have this witness summarize his testimony on any point, he should ask the witness to do so, but should not summarize for the witness.

A. You are correct except that you limit the number of cleat pushers to two on each chain. The particular patent I have in mind actually shows three cleat pushers on each chain, and considerable sections of the chain are shown as broken out, so I think it is fair to assume that even more than three cleat pushers were actually employed on each chain.

R. D. Q. 326. Please make a comparison between the loose spacer-block method which you have referred to at various times in your testimony, and the defendant's method and the plaintiffs' patented method.

A. To start with, the fundamental difference between plaintiffs' patented method and defendant's method is that in the patented method the cleats are positioned with their ends engaging spacer blocks, and they are carried through the stapling machine resting in a carriage so that there is no [fol. 526] frictional retardation of the cleats which would tend to correct any displacement of them if it were possible for such displacement to occur. Owing to the fact that the cleats in the patented method engage the spacer blocks at both ends, no longitudinal displacement of the cleats can occur with plaintiffs' patented workholder.

In defendant's practice, the cleats as they are passed beneath the staplers are shoved by the cleat pushers through the stationary guide channels, which cause a frictional retardation of the cleats in their movement, which retardation tends to correct any displacement longitudinally which might occur from the jerky step-by-step movement of the feed chains, or which might result initially from their not being properly positioned in the guides.

With the loose spacer-block method which could be practiced with the old Rosback machine, we have some character-

istics of plaintiffs' patented method and defendant's method, since with the loose spacer blocks, the cleats are engaged firmly at both of their ends by the spacer blocks and are held from displacement, or are held positioned for that reason, just as the spacer blocks function in complainants' patented workhold. However, these cleats, so relatively positioned by the spacer blocks, nevertheless rest on the stationary guides and are shoved beneath the staplers by the cleat pushers on the feed chains, so that with this loose spacer-block method practiced on the Rosback machine we also have the frictional retardation tending to correct longitudinal displacement of the cleats, which is the essential feature of defendant's method. As a consequence, this loose spacer-block method as practiced on the Rosback machine is a sort of a cross, as it were, between plaintiffs' patented method and defendant's method.

By Mr. Janney: When Mr. McElroy employs the expression "the loose spacer-block method as practiced on the Rosback machine," his implication is seriously misleading. No "loose spacer-block method" was ever "practiced on the Rosback machine." So far as appears, this loose spacer-block method, said to be possible of practice on the Rosback machine is simply speculative and conjectural so far as the Rosback machine is concerned, and has been devised in behalf of defendant for the purposes of this suit. It is purely hypothetical; and the court should not be confused into the [fol. 527] supposition that any such method ever existed in the prior art or that this witness' testimony about the loose spacer block can have any bearing upon the novelty or patentability of the inventions of the patents in suit.

R. D. Q. 327. In my last question I used the term "defendant's method, meaning defendant's licensees' method," as according to my information the defendants do not make boxes. If I had used the term defendant's licensees' method, would that have made any change in your answer?

A. No.

R. D. Q. 328. Please refer to Greenstreet patent 652,357, and Lipps & Springer 801,998, and state whether or not, in your opinion, by precleating all of the sheets an eight-cleated blank could be produced without changing the machine.

By Mr. Janney: Objected to because the question involves what the witness has referred to as the reprehensible practice of asking questions about hypothetical structures without making them clear by means of sketches, the practice which defendant's counsel objected to strenuously during the cross-examination. I give notice that I shall call upon the witness to make sketches to illustrate whatever blank the witness may say can be produced in the hypothetical manner referred to in the question, and which is not even remotely suggested in either of the patents cited. I suggest that it may save time if defendant's counsel will have the witness make the sketches referred to from time to time during the redirect examination.

The question is further objected to as immaterial, irrelevant and incompetent, because it refers to a hypothetical practice not found nor suggested in the prior art.

A. I do not think the Greenstreet patent 652,357 is intended to precleat blanks; as I take it, it is designed to produce the box shown in his patent No. 722,423, which has what he calls the cleats E, as seen in Figs. 1 and 2, and these cleats are applied in this Greenstreet machine patent at the same time that the blanks are wired, by the mechanism shown in Fig. 5. The slats are fed by a pusher out of the magazine 25 one by one, and the patent describes the cleats as being fed through the guides 97 at the same time.

With regard to the Lipps & Springer patent No. 801,- [fol. 528] 998, if we consider Fig. 14 as showing a box-blank, I see no reason why eight cleats could not be put on this blank by precleating the side sections, although in that case the capacity of the magazine would be very greatly reduced.

R. D. Q. 329. Please answer the same question with respect to the Greenstreet patent 579,574.

By Mr. Janney: I repeat here, as against this question, the same objections which I made to the next preceding question. This speculative argument upon hypothetical methods and structures nowhere found in the prior art, is objectionable.

A. Seemingly, you might put a cross strip, or a pair of them, beneath each of the pieces e in making up the web,

but inasmuch as the sides of the box are made up of several of these pieces e, I do not see that such additions would be of any value to the box.

R. D. Q. 330. In these same patents to Lipps & Springer and to Greenstreet, please point out what, if anything, is shown for positioning the separate parts one ahead of another a predetermined distance, and then wiring the parts together in foldable relationship.

By Mr. Janney: The question is objected to as assuming too much, particularly in its reference to "foldable relationship." These patents disclose slatted, wired fabrics which involve no more foldable relationship between their respective parts than do the parts of an old-fashioned barrel-stave hammock.

A. In the Lipps & Springer patent 801,998, the lugs 16 on the chains 15 seem to correspond substantially to the sheet spacers on the chains of defendant's machine and constitute means for spacing the parts x relative to each other before they are wired by the staplers to produce what is shown in Fig. 14. The structure shown in Fig. 14, obviously can be folded if desired. The Greenstreet patent 579,574 shows a pair of feed chains F that are provided with two positioning lugs which seem to be unlettered, for each of the slats e shown in the magazine in Fig. 5. I was mistaken in saying that the positioning lugs are unlettered, as they are lettered f as seen in Fig. 5. The resulting fabric is not intended to be folded between every pair of adjacent slats, but is folded at each corner of the box. The slats e are certainly positioned relatively to each other by this machine before they are wired together. What I have said relative to [fol. 529] the machine of the Greenstreet patent 579,574 would likewise apply to the Greenstreet patent 652,357.

R. D. Q. 331. Please read lines 30 to 40 on page 3 of Greenstreet 579,574, and explain what this language means.

A. The sentence referred to is as follows:

"The machine as shown in the drawings and here explained, is for making a shipping case, the sides of which are constructed from a series of slats; but I am able to bind with wire and secure by staples tight boxes, that is,

boxes the sides of which are made from one-piece material or one or more pieces to the side, the only change required being probably a difference in the spurs on the chain and in the absence of the feed slides."

I understand from this that he contemplated changing the feeding lugs f on the feed chains and doing away with the guides E, so that he could produce the cleatless blank illustrated in Fig. 5, opposite page 23 of the defendant's printed record in the Gibbons Box Company case.

R. D. Q. 332. I call your attention to W. P. Healy patent 1,248,414, and ask whether you understand it.

By Mr. Janney: Attention is called to the fact that this Healy patent is not in the prior art. The application therefor was not filed until February 8, 1911, more than six years subsequent to the filing date of the applications for the patents in suit. For this reason the question is objected to as immaterial and irrelevant.

By Mr. Cox: Plaintiffs' counsel overlooks that the method patent in suit was not filed until two or three years after this Healy patent was filed, but the purpose of the question will soon become apparent.

By Mr. Janney: Plaintiffs' counsel has not overlooked the filing date of the application for the method patent in suit; that particular filing date, however, is of little or no importance, because that application was a divisional application, divided out of the original workholder application which was filed in October, 1904, and therefore the method application is entitled to the benefit of the original filing date in October, 1904.

By Mr. Cox: The effective date of filing of the method patent can be left to be discussed in the brief.

A. I do.

R. D. Q. 333. In your previous testimony you have dis- [fol. 530] cussed certain methods that could be practiced on Rosback and other prior art machines. Does this Healy patent that you have just been referred to exemplify any of these methods; and if so, please explain?

By Mr. Janney: The objection already made against questions relating to this Healy patent, which is not in the prior art, is here repeated. By agreement of counsel, this

objection, without actual repetition, may be understood to be made against all questions relating to the Healy patent.

A. It does. The Healy patent No. 1,248,414 illustrates a machine having the same general characteristics as the Rosback machines in that it has a pair of endless feed chains H which carries three pairs of cleat pushers i spaced apart a sufficient distance so that a complete blank can be assembled on the feed chains between two sets of the cleat pushers. It is also provided with a pair of guide channels J through which the cleats are shoved by the cleat pushers, just as in the Rosback machine, and it has the pair of guides N adapted to co-operate with the tops of the side sheets and hold them in place as the side sheets and cleats are carried beneath the stapler heads B to have the wires C' stapled thereto in the well-known manner.

Healy describes what might be considered as three distinct methods of using this machine to make full-cleated blanks, and in the first method he precleats each of the side sheets and shoves all four of them beneath the stapler heads by the engagement of the front edge of each side sheet with the rear edge of the preceding side sheet, and he considers that by this method he gets a tighter box than he would if the side sheets were spaced apart when the wires are being stapled thereto.

In a second method, he produces the same kind of a blank with the edges of the side pieces or sheets in contact by using the loose spacer blocks M shown in Fig. 9, which have no fins for spacing the side sheets apart, so that the edges of the side sheets rest on the top of the loose spacer blocks. The loose cleats are put in the guides D, spaced apart by the loose blocks M, and the side sheets are then laid in place, and the assembled parts shoved through the machine by the cleat pushers i, and the wires, through the side sheets E and into the cleats to finish the blank.

The third method would be merely a modification of the second, as the only difference is that he employs the loose [fol. 531] spacer blocks K shown in Fig. 6, which are provided with the fins k by which the edges of the side sheets are spaced apart in the manner which is very clearly shown in Fig. 2 of the drawings.

R. D. Q. 334. Referring to the method patent and to the workholder patent in suit, can the springs 15 function to

put the cleats back in place if any of them should become forwardly displaced in the workholder?

A. No. They would have the effect of tending to keep the cleats in misplaced position.

R. D. Q. 335. In view of your last answer, please discuss whether or not these springs 15 of the patent in suit are the equivalent of defendant's springs or clinch blocks?

A. They are not equivalents. The real function of the springs 15 of the workholder patent in suit is to properly position the cleats transversely, and they have nothing to do with positioning them longitudinally. It is necessary to position the cleats transversely in order that they may be properly located relative to the binding wire during the stapling operation.

The clincher blocks in defendant's machine, where alternate cleated blanks are being produced, have a double function, they acting as clincher blocks for the uncleated blanks which pass over them, and theoretically they would act to bring the cleats back into place if any of them should have been advanced or misplaced longitudinally so as to get their ends out of the proper relationship to the edges of the side sheets. The functions of the two devices under comparison are quite different, for the reasons above set forth.

Defendant's Exhibit 2 for identification, shows a blank for a hexagonal or a six-sided container, as well as the container itself, but without any heads, or at any rate, without any head at the front end.

R. D. Q. 337. Could this blank be made on the Rosback machine?

By Mr. Janney: Objected to as immaterial and irrelevant. So far as has ever appeared, no such blank ever existed in the prior art or was ever made upon the Rosback machine. This hypothetical afterthought can have no bearing upon any question of novelty or patentability in this case.

A. Yes.

Naturally, six cleat pushers would be required on each side when employing loose cleats. Defendant's Exhibit [fol. 532] 3 for identification, shows a wirebound box blank

for an octagon or eight-sided box, and also the box itself.

R. D. Q. 340. Could this blank be produced on the Rosback machine?

By Mr. Janney: Same objection.

A. Certainly.

Naturally, eight cleat pushers would be employed on each side when operating in accordance with the loose-cleat method.

R. D. Q. 342. How did you determine the number of cleat pushers to be employed in each instance?

A. The number of cleats on each side, of course, determines the number of cleat pushers.

By Mr. Janney: Attention is invited to the circumstance that this selection of as many cleat pushers as there are cleats was never made by any one in the prior art with reference to preformed cleats or with reference to any cleats intended to be located in foldable relationship. The selection by this witness may be said to follow the pioneer teaching of plaintiffs' patents in suit, but does not follow any prior art teaching.

R. D. Q. 343. Please give your views as to whether the same principle applies to a blank for a four-sided box.

By Mr. Janney: Same objection. The selection and relative location of cleat-positioning devices in a co-operative relationship to act upon different parts of the same blank and to determine foldable relationship of cleats, so that when wired together they shall be foldable into respective positions to constitute parts of the same box—was one of the important things which Inwood and Lavenberg contributed to the art by their patents in suit. Naturally enough, the witness, having received the teachings of Inwood and Lavenberg, he now finds it a simple matter to apply those teachings to blanks made up of four, six, eight or any other number of cleated sections. But nothing of the sort was ever done in the prior art by Rosback or anyone else, as this witness has several times admitted. Hence, any answer the witness may make can have no bearing on any question of novelty or patentability in this case.

A. It necessarily would.

R. D. Q. 334. Plaintiffs' counsel in a recent objection has mentioned the preforming of cleats for box blanks [fol. 533] as if they were new. Please point out in the prior art some instances of preformed cleats in box blanks.

By Mr. Janney: Plaintiffs' counsel has never intimated that preformed cleats, per se, were new when unrelated to an assembly of box parts and a new method and new machinery which were originated by Inwood and Lavenberg. The presence in the prior art of isolated instances of preformed cleats is entirely immaterial and irrelevant, and the question is objected to on that ground.

A. The Hamilton patent 373,828 shows preformed cleats B; the Howenstine patent No. 453,479 shows preformed cleats i, with step-mitered ends; the Ramsey patent No. 486,297 shows preformed cleats 1, 2, 3 and 4, with a peculiar joint 5, 6; the Walker patent 763,579 shows best in Fig. 2 a box blank with preformed cleats having various reference numerals; the Walker patent 767,613 shows in Fig. 6 a box blank with preformed cleats c; the Healy patent 768,123, in Fig. 2, shows a box blank with the preformed cleats 12; and the Archer British patent No. 4793 of 1899 shows in Figs. 1 and 2 a box blank with the preformed cleats a'.

R. D. Q. 345. Please refer to X-Q. 68 and the answer that you made to it. You were speaking about adding cleat pushers to the Rosback machine and discarding certain parts of the machine. Will you amplify your answer as to what parts of the Rosback machine would be discarded?

A. If preformed cleats were used on the Rosback machine instead of the single long strips there shown, subsequently cut into four cleats, the Rosback machine would not need the saws for step-mitering and cutting the long strip into cleat sections, and the fact that these would not be needed was what I had in mind when I said it would put a good share of the machinery on the junk pile. This statement was sweeping and I think misleading, as if the saws were removed, that would constitute a comparatively small amount of the complete machine. Furthermore, I do not now see why the saws could not be used in making the preformed, step-mitered cleats, although, of course, they would probably be used in an entirely different and separate machine.

R. D. Q. 346. Assume that you remove the saws from the Rosback step-mitering machine and nothing else, would the unused parts which remained prevent the stapler, guides and feed-chain mechanism from functioning to produce a box blank by the loose-cleat method?

[fol. 534] By Mr. Janney: This question makes a misleading implication. According to the disclosures of the Rosback patents of record, the step mitering machine which had the saws was an entirely separate and distinct machine from the blank machine upon which the rigid Rosback blank was made by stapling the long side-sheet material to the long rigid strips of cleat material. The blank machine produced the rigid Rosback blank, which thereafter was passed through the step-mitering machine. The operation of the blank machine was wholly completed before the step-mitering machine was called into use for any purpose.

A. So far as the patents in the record show, Mr. Janney's statement is correct, but I see no reason why these step-mitering machines could not be employed for making the preformed cleats, although some change might have to be made in the feeding mechanisms, since in that case you would have to feed separate strips instead of two strips, to secure to the long side piece. Answering the question directly, it would not.

In Rosback 608,796 the cleat pushers are stationary when the staples are being driven. This is set out in the sentence beginning with line 63 of page 1 of the specification. In comparison with defendant's machine, it is the same action and arrangement.

R. D. Q. 349. In the patents in suit, why are the rear sides of the spacer blocks made like the front sides, and what is the utility thereof?

A. According to the teachings of the workholder patent in suit, both ends of each cleat are engaged by the spacer blocks, which are adjusted carefully for distance apart so that the cleats will be positioned relative to each other with absolute accuracy. As the workholder has no means for correcting any possible displacement of the cleats after they are once positioned, as does defendant's device, it is important to have the cleats necessarily positioned with absolute accuracy to start with, and that is the purpose of the arrangement inquired about. Of course, the spacer blocks

same shape because the ends of the cleats are shown as having the same shape, and I take it that the plain beveled surface was employed so that the same spacer blocks could be used with step-mitered cleats in which the steps were of different dimensions, if it should be found desirable.

In the patents in suit, the main feature of supposed utility in having the workholder portable is that a number of [fol. 535] workmen could be employed in the assembly at the same time by having each supplied with a plurality of workholders so that they could be filled and then laid aside, if desired, for any length of time before they were sent to the machine to have the blanks wired.

R. D. Q. 351. In addition to any advantage that might be specifically mentioned in the patent, can you think of any other distinguishing characteristic, for instance, in connection with changing the size of the box blanks to be produced?

A. Well, it is obvious that the workholders can be adjusted for blanks of different widths, or, possibly, I should say lengths, in order to make boxes of different sizes, without the necessity of adjusting any guide mechanism on the stapling machine shown in the companion patent 1,128,145. Of course, the position of the stapler head would have to be adjusted on the last-mentioned machine if the width of the boxes being produced was changed, but owing to the absence of any guiding mechanism on the stapling machine, and the use of the long, gear-toothed feed rolls 38, the adjustment of the stapler heads on this machine would be all that it was necessary to change on the machine itself, although it seems a question whether that would be any advantage in view of the fact that you have got to adjust a very considerable number of these portable workholders whenever a change in the size of the box is made. There may be some practical advantage in the fact that the workholders can be adjusted while the machine is in operation with other workholders than those in the process of adjustment.

To compare this with the adjustment for the same purpose in defendant's machine, in defendant's machine all the adjustment is made on the machine itself, and the work has to be stopped completely while the machine is in process

of adjustment. In other words, you cannot be positioning a lot of blanks while the machine is idle or being adjusted.

R. D. Q. 353. For about how many years has your profession given you occasion to deal with inventions and inventors?

A. I went into the Patent Office in 1891, and have been dealing with inventions ever since. I did not, however, come in contact with inventors to any great extent until 1896, when I began the practice of my profession in this city. Since that time, I have come in contact with quite a few of them.

R. D. Q. 354. Please refer to the three patents in suit and the expired box reissue patent No. 12,725, and state, [fol. 536] in view of your experience, what, in your view, is the probable sequence of the inventions or alleged inventions set forth in these four patents?

A. Judging from my own experience and observation, I should say that it was more than likely that the box or blank invention was the first one conceived of and reduced to practice by hand. After it had been concluded to be practicable, naturally the question of producing it commercially would come up, and that would mean the use of machinery for producing it. I would expect that the production of the workholder structure was the next thing in order, and that after it was produced, some of the old stapling machines of the prior art were modified to produce the structure of the machine patent No. 1,128,145. As for the alleged method patent, I doubt if Inwood and Lavenberg ever thought that there was any method involved, as it has been my observation and experience that those so-called methods carried out by the use of specific machinery are first formulated as methods by the patent solicitors. An inventor naturally thinks about a machine for producing the object invented cheaply, and I think that he thinks rather in the terms of machines than of methods. I might add a qualification as to the time of the production of specific forms of articles that are invented and produced by machinery in that the original specific conception is sometimes modified so as to make its production by machinery feasible where the production of the specific original conception might have been impossible or at any rate not so practicable.

By Mr. Cox: I now formally offer on behalf of defendant the following exhibits:

Defendant's exhibits 1 and 1*a*, Photoprints of "South Bend" or "St. Joe" Machine;

Defendant's Exhibit 2, Drawing of Hexagonal Box Blank;

Defendant's Exhibit 3, Drawing of Octagonal Box Blank;

Defendant's Exhibit 4, Photograph of Defendant's Machine;

Defendant's Exhibit 5, Photograph of Defendant's Machine;

Defendant's Exhibit 6, Photograph Showing Rosback Machine;

Defendant's Exhibit 7, Photograph of Defendant's Ma-Machine.

Defendant's Exhibit 8, Healy Patent 1,248,414;

Defendant's Exhibit 9, Certified Transcript of Record in [fol. 537] Court of Apepals, District of Columbia, October Term, 1909, Patent Appeal Docket No. 614, Interference No. 27,004, W. P. Healy v. Richard G. Inwood and Perry C. Lavenberg.

Redirect examination closed.

Recross-examination.

By Mr. Janney:

R. X Q. 355. Is there any disclosure in any Rosback or kindred patent of the intention to make two or more cleat pushers on the same feed chain adjustable in relation to each other for any purpose?

A. In the Rosback patent 608,796 the description of the cleat pushers is as follows:

"Each feed chain is provided at stated intervals (in the present machine nine feet apart) with stops or cleat and sheet engaging projections H⁶, they being on the outer side of the chain to project upward as the chains pass from the sprocket wheels H⁴ to the sprocket wheels H⁵ over the guide strips $s^2$."

I do not find any other statement as to the adjustment of the projections H⁶ than the above quoted one that they are located "at stated intervals," which would mean that they are adjustable. In Figs. 33 and 34, these pushers H⁶ are shown in side elevation on the sprocket chain H⁵, and they appear to be secured thereon by short bolts. As this is

an ordinary sprocket chain, and not a link-belt chain, the projections H[6] would be separate from the chain links themselves, and would have to be attached thereto, and would consequently be adjustable, if occasion arose to do so. In the Rosback patent 614,348 a description of the cleat pushers F' is even more brief, being as follows:

"Extending over the sprocket wheels D', E', are feed chains F, each provided with two similarly located projecting blank engaging feed lugs F'. (See Figs. 2, 11 and 13.)"

The feed chains F are shown as ordinary sprocket chains, and the feed lugs F' would be separate lugs secured thereto in the necessary position to bring the specific blanks to the staplers at the proper time, which would require their accurate positioning. I do not find anything in the specification about any adjustment of the lugs F' once they are positioned.

In the Rosback patent 625,958, the feed chains $e'$ are [fol. 538] of the well known link-belt type, and two of the links in each chain are provided with ears $l$, by which the cleat and sheet pusher is positioned. As these links are all removable, it would be possible to locate the pushing mechanism at any point in the chain that might be desired, by simply shifting the position of the links carrying the ears, but the specification says nothing about their being so shifted.

The foregoing statement includes all I can find, and the answer would be negative.

R. X Q. 356. As I understand your answer, you say that the Rosback machines have a capacity for adjustment of the cleat pushers, because the cleat pushers are removable from the chains, and can therefore be removed from one position and shifted to another position lengthwise of the chain. But you do not find in any Rosback or kindred patent any statement that that capacity for adjustment can be made to serve any preconceived useful purpose. In answering this question, please do not offer your own conjectures, but confine your reply to the pointing out in any Rosback or kindred patent of any statement therein of the character described.

A. I think that is correct.

R. X Q. 357. Please refer to your answer to R. D. Q. 328 and to the Greenstreet patent No. 652,357 there mentioned. In your answer to that question you cite also the Greenstreet patent 722,423 as showing a box "which has what he calls the cleats E, as seen in Figs. 1 and 2." These so-called cleats E, as disclosed by Greenstreet, are thin, flexible strips extending integrally from end to end of the wired and slatted fabric. That is correct, is it not?

A. No. The parts E are not described as flexible and they are described as made of wood and as having the function of keeping "the wires extended or drawn out to their full length, thus avoiding the kinking or buckling referred to." This matter is discussed rather fully beginning with the sentence begining in line 48 of page 1 of the specification of the Greenstreet patent 722,423, and is concluded with line 90 of the same page. When he speaks about the fabric being bent in the direction, I take it he refers to bending the entire fabric shown in Fig. 1 at the corners, and the drawings, and especially Fig. 3, indicate that the strips or cleats E are cut in two at each corner, instead of being bent. I would say, however, that the primary function of the cleats in controversy in the Greenstreet [fol. 539] box are not taken by the cleats or strips E, but by the cleats shown in Fig. 4, and there marked G, G', $G^2$ and $G^3$.

In the box of this Greenstreet patent No. 722,423, the parts that I have called cleats *e* are initially referred to (specification, page 1, line 54) as "a stay or expansion strip E"; as I recall it, I got the word "cleat" as applied to this part from the specification of the Greenstreet patent 652,357. I might also note, as a matter of interest, and possibly of some importance, that this Greenstreet patent 722,423, in one form, contemplates the use of the box with eight cleats D. I quote the paragraph beginning with line 54 of page 2 of the specification as follows:

"At D, Fig. 5, is shown an exterior cleat, of which I may employ eight in the finished box, arranged, as shown, across the ends of the slats and attached to the end parts of the box by nails and also secured to the slats by fastenings *d*, such as nails, independent of the nails which engage said end parts."

I consider the strips G shown in Fig. 5 of Greenstreet patent 722,423 to be analogous to the cleats [illegible]xes made in the use of defendant's machine, in that they furnish a good share of the material which holds the box in shape. They, of course, are fastened to the ends rather than to the side, but that is ordinarily true in the finished box in controversy, where ends are employed. That is to say, the cleats, in addition to being fastened to the side, are sometimes fastened to the ends.

In the workholder patent in suit, the spring 15 in the cleat channel presses the cleat up against the outside wall of the cleat channel; and that outside wall of the cleat channel defines the lateral adjustment of the cleat in its relation to the coresponding side sheet.

R. X Q. 361. In defendant's machine as shown in Plaintiff's Exhibit No. 16, the spring-pressed detent 36 presses the cleat up against the outside wall of the cleat channel; and that outside wall of the cleat channel defines the lateral adjustment of the cleat in its relation to the corresponding side sheet. Is that correct?

A. I should say not. The cleat fits snugly in the channel, as shown in the drawing, and no side play is possible. It would, however, have that tendency if side play were possible.

R. X Q. 362. Has it been your observation in the actual use of defendant's machine that side play of the cleats in the cleat channel is asolutely prevented?

A. I do not recall noticing this particular point with much care. In view of the fact that they use the machine princi- [fol. 540] pally for tongue and groove joints, where exact registration is desirable, although not absolutely essential, as the wires can give, I would expect that there would be no more play than is necessary to shove the cleats through without an excess of frictional resistance.

By Mr. Janney: I offer in evidence in behalf of plaintiff the sketches and drawings produced during the cross examination of this witness to be marked respectively Plaintiffs' Cross-Exhibits X-1 to X-7, inclusive.

Deposition closed.

Signature and notarial certificate waived.